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INDEX TO VOLUME LXII

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# INDEX TO VOLUME LXI

JULY TO DECEMBER, 1932

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who disussed the papers are also included. Details of society proceedings, including the titles of papers read,

officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

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# ILLINOIS MEDICAL JOURNAL

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## Editorials

### FINANCING PHYSICIANS, HOSPITAL AND DENTAL BILLS IN INSTALLMENTS AND AT THE LEGAL RATE OF INTEREST

Installment payment of medical, dental and hospital bills, under a system approved by economic experts in the profession, offers a glad oasis both to physician and patient. Not the least of its virtues is that this system will place the doctor in the ranks of those creditors of the average man who regularly receive a fixed and assigned portion of his earnings for an acquired indebtedness.

The question of installment payments of medical, hospital and dental bills is before the profession the same as is installment payment so prevalent in other lines of business. Under current crises this would appear to be of imminent adoption and necessitous urgency.

These are days of crusts, or of half loaves rather than of full bakings. From the obscure rubber plantation of India to the most elaborate electrical factories of great cities, the poison of world deflation leaves economic values askew. In the matter of payment for value received the creditor takes what he can get,—usually crumbs from a debtor's table that is often only too pitifully bare; especially is this true when it comes to the matter of collections for professional men—lawyers, doctors, dentists, the ministry—all of those vital servitors for the personal necessities of life that lie just outside the realm of food, shelter and clothing, who find themselves stranded high and dry from the budget allotment of an impoverished world. Everybody gets paid but the doctor. What if the paying is done by installment? Why not pay the doctor that way, too?

That prosperity that went up like a rocket, came down like a whole bundle of the proverbial stick. Of a surety the tide must and will turn but this shift will be a matter of slow swell and

lethargic gathering of momentum. And in the meantime,—what?

The professional man must adjudicate his policy of financial compensation on the same basis as shall come the financial revitalization of the world.

Whether these new doctrines shall be for emergency use only, depends upon the fashion in which their application shall work out. Whether the continuous change of current conditions shall convert to chaos or a greater conservatism, the world knows little and reckes less, but certain it is that among us has come a transmutation both of values and of our acceptance of them.

Science, serene in its superiority, once stood aloof from trade, but if science would exist she must turn to the Scriptures, "make friends with the Mammon of iniquity" and get down into the market place for a session with the rule of thumb of trade. This as a matter of financial therapy rather than of financial thaumaturgy.

For a debtor financially sick, commerce has long had one standard dose. "If you can't pay it all at once, pay what you can as you can."

The weakness of human nature often leaves a debtor in doubt as to what he can pay and when. Business pulling its beard and getting at the pro and con of the matter, hit upon a safe and sane way out.

The-pay-as-you-can method of compensation was made self-respecting, and told to stand upon its own feet rather than to lean upon the back of some one else. In other words the lame duck of finance instead of being a shift became a promise and a definite responsibility. It became a contract rather than an evasion.

And the contract has a title of its own, too, the artful appellation of installment payments. Installment payment for luxuries is a questionable benefit. For the necessities of life it is a different question. There is no doubt but that the wise use of the portion by portion payment plan has enabled the bulk of the American citizenry to achieve a greater decency of living than would otherwise have been possible. A crutch to credit, yes, but crutches save for the world many a worthy worker.

This purchasing-out-of-income took its greatest early impetus from the plan of manufacturers of near or expensive luxuries to stimulate demand to keep pace with production; later a more sen-

sible balance was struck. Moreover the gentle process of abstraction of small payments put many a piano, sewing machine, radio, vacuum cleaner or automobile in the midst of a family that otherwise would not have known these general and generous pleasures of an advanced civilization.

The successful operation of an installment payment plan for compensation would lie in the financing of these payments. The task of looking up financial ratings for persons who need expensive minor and major operations, who by no means are charity patients, but whose incomes are so derived as to make lump payments impossible; the achievement of having a bank discount the note or notes that are the backbone of financial payments in installments is a business in itself.

Few physicians—so small a number in fact as to make it almost without exception—have the facilities for collection of patients' notes or the standing to borrow at the bank on the intangible assets of their profession, such as is granted as a credit convenience to the merchant or broker.

Otherwise his would be the privilege of permitting the bank to discount the patient's note. This would permit the patient a fortuitous extension of time and permit the physician to borrow money at less than the current rate of interest and without the deposit of triply gilt edged collateral.

This situation would leave the medical profession in the position of making arrangements with some such variety of "acceptance company" as is used by radio, automobile and piano companies, and similar business organizations. The system is on this order:

We will say a man buys a radio. He makes a down payment of \$25 on a \$125 machine. He signs ten notes for ten dollars each, plus a reasonable interest, and payable monthly. The man who sold the radio indorses the notes, takes them to an "acceptance company" and cashes them, getting say ten or twenty per cent less than face value for them. The acceptance company then collects the payments.

It might be possible under certain circumstances to "pass the buck"—to the banks. Under present economic conditions this is an absurd consideration and total impossibility, and yet experience of the National City Bank of New York as cited from 1928-9 would seem so to indicate.



Opening a department for loans without collateral security to working folks who needed a hundred or a thousand dollars and needed it badly. After a year during which the bank loaned over \$16,000,000 in such contracts a report revealed such borrowers met obligations promptly.

So this great bank helped in one year more than 50,000 New York families by its small loan policy. It helped a man to finance a surgical operation for his son. It provided a waitress with enough money to bring her brother to this country from Germany. It freed many wage earners from the *toils of the loan shark*. A third of the loans were for medical and dental service; 15 per cent to pay debts and other loans; 14 per cent went for home equipment, and 8 per cent for payments on homes; education took 5 per cent. The repayment plan, calling for regular savings accounts deposited from wages, was promptly followed by 90 per cent of the borrowers and legal actions had to be instituted for the recovery of less than 1 per cent of the total loans.

For what is well called "inevitable illness," medical financing or installment paying would prove a boon indeed to both patient and physician. The greatest present service to both would be some practical plan whereby payment for medical services can be made easier for the patient and more prompt and certain for the doctor. Why should the doctor wait months and even years for his compensation while he suffers privation as the result of this practice. If payments were made less difficult for the patient and more quickly to the doctor the self respect and well-being of both parties would be enhanced beyond computation.

Medical men should seek to develop and encourage a plan of financing patterned after the plan followed by the National City Bank of New York. A plan which will stand much careful scrutiny, have the support of conservative financial interests and be managed by men of unquestioned character and probity. Such a plan will do more than anything else to establish the essential cordiality of economic relationship between patient and doctor.

Under normal circumstances 6 per cent. of American families have an annual income in excess of \$2,900. 90 per cent. have annual income *under* \$2,000. 67 per cent. have annual

income under \$1,450. The big majority is unable to pay substantial sums for anything in the form of a lump sum but they must pay as they earn, out of income, on a monthly or weekly basis for many vital items of daily life.

Even in normal times 86 per cent. of the American people cannot go to a bank and make a collateralized loan so normal bank loans are not available to the majority. Standard small loan agencies and personal loan banks, get high interest rates, the legal and customary maximum being 42 per cent. per year and this rate of 42 per cent. added to medical fees is too dangerous for the profession to advise for the public.

Medical fees represent a specialized field for which the financing should be handled by specialists who understand the economic problems that exist in the average professional office. A *complete* professional service should contemplate not only the rendering of advice and physical attention but *provision* for the payment of a fair fee so that the patient can seek such advice and service continually and frequently without the hesitancy which today exists often because of economic reasons. Open accounts are frequently boomerangs which tear down professional practices.

An organization, controlled and guided by professional men for the purpose of enabling deserving people to pay fees in easy installments can do much besides this single service to create better conditions around the economic side of the average professional practice. Loss to employers due to sickness and due to inefficiency on the part of those employees who are postponing medical, hospital and dental attention for economic reasons, represents a real opportunity for such an organization for service to both doctors, dentists, hospitals, as well as the public.

Finance institutions directed by medical men can be successfully operated at a legal rate of interest that will be but a fraction of the rates charged by the commercial loan or finance corporations.

This would be a great aid to the family of average income, and simultaneously help to keep the physicians out of the bread line, would guarantee an augmented income and best of all would give the bulk of honest men who feel that medical service, especially operative service, is indicated and yet is postponed because of inability

to pay for it, an opportunity to acquire it. Some such scheme would seem the most feasible at the present time. Some organization set up along the lines indicated and having the approval of medical and dental organizations are successfully operating in some of our big cities.

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ULTIMATELY THE CLINIC WILL PROVE  
TO BE ANOTHER EXAMPLE OF THE  
CURE BEING WORSE THAN THE  
DISEASE

The clinic has become as ubiquitous as the mosquito in a swamp and equally pestiferous in destruction of healthy practice of medicine.

In the beginning the clinic sprang into existence as a source of teaching material for medical colleges or clinics, or as a penance under religious sanction for evil lives. The last of course in the dark hours of the middle ages.

In its development the clinic has wandered far away from its origin. Today the clinic stands as malevolently in the path of medical progress and prosperity as once it held out a benevolent guiding hand in those ways for civilians.

Modern medical centers, or modern medical clinics may on occasion be temporarily helpful to a few physicians. This aid is only ephemeral. By its very nature it cannot be otherwise. Ultimately the clinic will prove to be another example of the cure being worse than the disease. "Figs cannot spring from thistles."

Huge clinics, usually lay endowed always lay controlled are the order of the day all over the country. Already such overcentralized control of medical activities blights aspirations of individual doctors. Yet it is the individual that makes the group, after all and not the group the individual. Yet if the present rate of putting up huge centrally controlled medical institutions continues, medicine will no longer rank as a science but merely as a commercially controlled industry. Powers alien to the profession will dictate and supervise and interfere until the sacred art of healing the sick will become a mere mechanical craft, and, as such a machine made makeshift instead of a service that like religion is a causeway between this world and the next.

When medical service is ruled more by quantity and not by quality, as is the tradition of trade, medical service as such loses the quintessence of its being. Bitterest swallow of the whole cup of hemlock lies in the fact that this slaughter of the innocents comes in part from medical men themselves. True it is that in the past medicine has withstood all attacks both from within and from without but now the great walls show signs of crumbling before the clinic.

This menace in the masque of mercy deceives both those who serve it and those whom it pretends to serve. Resting on huge endowed foundations under lay dictation, managed by great universities entering into competitive practice with their own students, or by almost fabulously wealthy private interests and corporations entering illegally into the practice of medicine the clinic has become a monster of baleful mein. Churches, department stores, fraternal orders all hang out the sign of the clinic. A good sign in itself to the practically prophetic eye of the medical economist, the sign of the clinic is becoming fraught with as much evil as the cross of chalk on London doors during the great plague of medieval times.

Probably there must always be clinics. For them there is an indicated need. But this need lies only where the dispensing of necessary service to the absolutely destitute and the perfectly indigent calls aloud to heaven for aid. Those dispensaries where the well-to-do come to secure free or part paid medical and surgical service for which they are as well, if not better, able to pay than the attending physicians are to donate, seethe as wells of socialistic evil and actual destruction of democracy. It is the taxpayer or another citizen paying community bills. When it becomes necessary to run free or part paid medical care for that class of citizens whose incomes are greater annually than are those of the physicians who care for them, then something is very "rotten in Denmark." Medicine cannot be absolutely blameless in that it has fondled the clinic on its doorsteps. But medicine should get up, dust itself off, take a look about and figure out why in the present curse of clinics, instead of medicine running the clinic the clinic is running medicine. The result will be interesting for audi-



tion as well as auditing. Realization of this result is bound to bring about the long awaited upheaval in medical economics fraught as it must be with concessions from all contenders but with concerted medical action.

### DOCTOR SIMONDS WINS RAVENSWOOD HOSPITAL PRIZE

During the recent meeting of the state Medical society at Springfield the Ravenswood hospital Laboratory offered a prize for the correct or nearest correct diagnosis of one of the pathological specimens in their collection exhibited at this meeting.

After due consideration of the numerous diagnoses submitted, the Laboratory committee of Ravenswood hospital has awarded the prize to Dr. J. P. Simonds of Northwestern University. Dr. Simonds stated that the specimen was the liver of an animal other than man showing some sort of a leukemic or leukemoid condition. Others who deserve honorable mention for their keenness of observation are T. Nelson, 636 Church St., Evanston, and N. Rosen and H. H. Cole both of Springfield, Ill., who noted the possibility of the liver being from an animal rather than human.

The facts regarding the specimen are as follows: One of the members of the staff of Ravenswood hospital noted that three or four chickens out of a flock of 200 were ailing. The sick fowls were the only capons in the lot and the condition developed about a week after the addition of whole corn to their mixed feedings. The four capons showed symptoms of anemia with loss of appetite and died in a week or so. The livers of all four were found to be enlarged and pale, and studded with nodules about 5 to 10 mm. thick: Microscopic sections of the nodules showed lymphoid tissue, and a diagnosis of acute lymphatic leukemia of chicken was made in the hospital laboratory. The diagnosis was confirmed by Dr. L. E. Day. Among the diagnoses submitted were: Adenoma of Thymus gland, T. B. of child's liver, fatty or amyloid degeneration of liver, sarcoma, metastatic carcinoma of liver of infant, congenital lues of infant, embryonic malformation of liver, gumma of liver, status lymphaticus.

### FOOT AILMENTS COST AMERICAN INDUSTRY ANNUALLY ONE HUNDRED MILLION DOLLARS

Among the numerous branches of medicine neglected by the profession to the everlasting exaltation of the charlatan is that of the ills of the human feet.

The task of ministering to the human foot is one of the noblest branches of surgery. There is nothing humble about it. Unfortunately too many of our general practitioners fail to realize that there can be and are many serious ailments of the feet other than those of congenital deformity or accidental mutilation.

Hundreds of doctors would have their eyes opened and their professional souls outraged if were brought to their attention the alarmingly large amount of foot surgery of a delicate and technical nature performed upon the human foot by men and women unskilled, untrained, unfitted in anything but the fake art of bungling.

Considering that the feet are the levers by which that most wonderful of machines—the human body—is propelled it is astonishing how small an amount of attention is paid to pedal prophylaxis.

Yet foot ailments are a cause both of physical and financial inefficiency, and great physical distress.

Improper shoes and negligent foot habits are the cause of many ailments of seemingly obscure origin.

The time to take care of the feet is infancy. The delicate and important bones that are in the feet form one of the most intricate bone units of the entire body.

Statistics reveal that foot ills are on the increase in the United States and that annually in the United States through inefficiency caused by pain and discomfort industry suffers a loss of some \$100,000,000. This same report asserts that nine out of every ten adults are afflicted with some form of foot ailment; that of this number sixty-eight per cent are among women and thirty-two per cent men. This is explicable because of the desire of women to appear to possess small and dainty feet, and to attempt to wear a shoe that is too small or of an artificial shape compared to the natural conformation of the foot. Entering further into this tabulation 100 per cent of the foot ailments

among women run in a ratio of seventy-six per cent between the ages of thirty and fifty and of twenty-four per cent between the ages of eighteen and thirty. That foot ailments in women increase in proportion to age is indicated by the fact that between the ages of forty and sixty as well as between the ages of twenty-five and forty the percentage is fifty in each group.

Seriousness of this foot impairment may be gauged from the fact that in surveys made of school children between the ages of eight and fourteen eighty per cent of the girls and sixty-five per cent of the boys are found defective. Much of this is caused by ill-fitting shoes usually too small a shoe—from babyhood.

During the world war foot troubles came in for a long merited probing. The result was that while at the outset thousands of men were rejected for flat feet, towards the end of the war many such cases were being aptly remedied.

An army they say travels on its stomach and is no better than its feet. Much of what is good for the army is good for the civilian. Piping times of peace can adopt much that is found necessary and fundamental in the days of strife. Absolute *foot cleanliness* including daily change of hose and if possible alternation of shoes, does much for minor foot ills of the average individual. Yet cleanliness is only the first step. Foot woes go deeper than that.

To look at the feet of the average woman is to ask, "Are we in civilized America in the twentieth century or is it mediæval China with women's feet constricted and distorted?" The heels and the toes that fashionable shoes present should set the sanitarian to thinking. The present sandal "fad" is to be urged universally.

Some 15 years ago Dr. A. Ritschl, a German, voiced in the periodical literature of the day the following sentiments of disapproval: "But how badly the feet are treated by a majority of our people, partly from ignorance, partly through foolish vanity, by shoes too short or too narrow, with heels too high. What misshapen and deforming shoes they dare offer our women and girls even in this grave time of war, when it is the duty of every one to make himself strong and efficient." He further comments on conditions as they then existed by saying, "A glance at the people moving in a city street shows that

crowds of these have bitten at the injurious bait." Dr. Ritschl proceeded to discuss the high-heeled, narrow shoe from the anatomical and medical points of view as well as comments on the heel that is too low.

The condition that set this German physician to thinking is the almost world wide rule. Everywhere we witness great crowds of women and girls shod in injurious foot gear. Men have injurious and insanitary fashions, but not in shoes. The high heel and pointed, wedged-shaped toe of women's shoes do the damage. High heels on the street furnish another example of what has been termed "the American failing of diamonds at breakfast," and, while they may be demanded for a short while as a portion of party adornments, they are obviously out of place on the street. Furthermore, worn by women in occupations requiring continuous standing, by shop girls, restaurant waitresses, elevator attendants and factory employees. Such foot gear is murderous.

More and more it is known and taught that the human body is a connected whole, and local causes for what appear to be local ailments are less and less sought. "What affects one part of the body affects the whole" is an expression of the thought of today.

America is essentially a mechanical nation, and the false mechanics of the high heel should appeal to every thinking individual. The principles of the arch apply equally well whether the structure be of stone and mortar or bone and muscle. The main arch of the foot supports the entire weight of the body, so it is important that the stresses be properly provided for and that the arch have a firm foundation. The high heel violates both these principles as it shifts the strains and changes the foundation to an insecure one. Watch a French heel strike the sidewalk. See how uncertain it is when it comes into contact with the walk, see how it "wobbles" before coming to rest, and see how, even then, the lines of support are not the vertical ones of natural posture.

The tilted arch evidences undue strain somewhere, the indecision of the step indicates strain somewhere, and the final posture of rest testifies to other strains brought to bear on muscles not intended for the work. The high heel dis-



arranges the regular lines of support of the body above the foot. Every engineer knows that compensations are necessary. When an overly elevated heel throws the knee forward to maintain a comfortable angle at the ankle, it is balanced by a backward-tilted thigh, and this again demands a forward-leaning backbone and body. Instead of the upright figure that is normal for the support of the weight, this is upheld by a line broken at three points, a mechanical disadvantage. Even if these departures from natural conditions are ever so small, they mean unfortunate leverages and the calling into play of muscles not intended for the work.

The toboggan slide of the sole upheld at one end by the high heel is beyond discussion for those conversant with mechanics. It is inevitable that the foot, impelled by the weight of the body, slide down the inclined plane of the sole till restrained by the toe-end or the sides of the shoe. If deliberate intention had sought to create continuous inconvenience and final injury to the foot, it could hardly have hit upon a more cunning device for the purpose. It is no use to urge the well-known plea, "They are perfectly comfortable and miles too wide," for the untoward mechanical conditions exist and injury will inevitably follow. Important medical conditions in distortion and constriction should be considered, and in these the foot is not the only sufferer.

One especial care in the late war was to have the American soldier well fitted to shoes. Some original invention made this possible in a minimum of time. For the first time in the country the scientific measurement of the feet was undertaken for very large companies of men, and from these measurements it developed that half to three-quarters of the men of the country were wearing shoes from half a size to two sizes too small. This difficulty, so far as the army is concerned, was corrected in the interests of efficiency. The reports prove, however, that the men of the United States have not given the attention to their feet that good health and efficiency demand.

The person, man or woman, whose ability to walk is for any reason handicapped, runs the risk of falling into a vicious circle. He loses the amount of exercise that he would naturally take if his feet were comfortable.

## SOCIAL INSURANCE—QUALITY OF MEDICAL SERVICES DETERIORATE UNDER COMPULSORY HEALTH INSURANCE\*

In preceding articles Social Insurance as a whole has been considered. In this and subsequent articles our observations will deal more particularly with Compulsory Health Insurance, one phase of Social Insurance. The chief danger to medical progress and efficient medical service to the American public comes from that small group who wish to establish lay bureaucratic control over the private practitioners of medicine and dentistry.

The state exercises a legitimate and proper function in public hygiene and sanitation, the teaching of personal hygiene in schools and colleges, in the medical care of paupers, criminals, and the indigent in general, but whenever and wherever it has entered into the private practice of medicine it has always resulted in inefficiency. Even in institutional work, with the possible exception of University Clinics, the medical service rendered by the government is rarely excellent or even good, nearly always mediocre and often times even worse.

The health, happiness, prosperity, and efficiency of the citizenship of any nation depends more upon the integrity, ability, unselfishness, and enthusiasm of the medical and dental professions and upon the quality of medical and dental services rendered to the people than upon any one other factor. Any change in the practice of medicine and dentistry which will in any way hinder these professions from giving their best services will eventually react unfavorably upon the whole nation. That state medicine and Compulsory Health Insurance actually will and does lower the general quality of medical and dental services is supported by reason and experience. While it may level up a little from the bottom it unquestionably levels down from the top and it is this leveling down that will surely stop medical progress.

Medical progress depends not so much upon the rank and file of the profession as upon occasional great men with vision. If we unduly hamper these great medical minds, medical progress must cease. The quality of medical services received by the people in general depends in large measure upon the quality of

\*Sixth installment of Dr. Edward H. Ochsner's articles on Medical Economics.

teaching which the rank and file of the profession receive and upon the enthusiasm and the ideals which are instilled into them by their teachers. Men of great ability can do their best work only if absolutely free, and a physician under lay bureaucratic control never is entirely free. Andrew Carnegie, one of the most successful men of modern times in the best sense of that word, makes the following statement in his Autobiography: "Thereafter I never worked for a salary. A man must necessarily occupy a narrow field who is at the beck and call of others."

One of the continually recurring misstatements in the Compulsory Health Insurance propaganda is that it encourages personal hygiene and consequently disease prevention. Nothing could be farther from the actual facts. Which person is more likely to take care of his teeth—the one who gets his dental services free, or the one who has to pay for it out of his own pocket? Those who claim the former just do not know human nature.

One of the chief causes of wonder of the Germans during the World War was the splendid condition of the teeth of the American soldiers as against the almost universally poor teeth of the Germans. Why this great difference? The chief and principal reason is that American citizens have their teeth taken care of by private dentists who take a very personal interest in each individual patient. Most American dentists and physicians are spending much of their time instructing their patients in general and oral hygiene. Contrast this with the work of the *Krankenkasse* physician of Germany who asks his patient one or two questions, then reaches into a file, hands him a typewritten prescription and gets rid of him just as quickly as he can and as he must, if he is to see fifty patients in an afternoon office period of two hours; and this he is by force of necessity compelled to do if he is to make a living for himself and his family at twelve cents an office consultation. Then again the claim is made that Compulsory Health Insurance examinations are more thorough. This too is a statement contrary to fact and to reason when one realizes that the sort of office consultation above described gives the physician the same pay as a thorough physical examination does. No man can afford to make a careful, painstaking examination for twelve cents—not even in Germany, where living ex-

penses are almost as high as in this country. One "*Krankenkasse*" physician in Berlin told me personally that he made twenty-three house calls in four and one-half hours or at an average rate of one in a little less than twelve minutes, driving from house to house, going up from one to four flights of stairs each time, examining a patient and prescribing for him.

Brend states that in England the average time spent by panel physicians in making a diagnosis is from three to four minutes. Another English writer in commenting on the above facts rightly observes that these are not abuses of Compulsory Health Insurance but inherent faults of the system.

We have all repeatedly seen and heard the statement that seventy per cent. of the American people—namely, the low and moderate income classes—are not getting adequate and efficient medical services. Where those who make this statement get their statistics no one has ever been able to find out. The fact is that there are no statistics available on this point. From this it must be evident that the only place they can get these figures is from the depths of their fertile imaginations.

If we stop to investigate the source of these statements, we invariably find that they emanate from two classes of individuals—namely, a certain type of ultra medical specialist whose only experience is or has been with the extremely rich whom he charges fancy, exorbitant fees and with paupers whom he treats in charity hospitals. As a consequence he has had no personal experience with patients with moderate incomes and has no right to express an opinion on this subject. The other class who repeat these figures are usually persons who never have had personal experience with the practice of medicine and hence their opinions are practically worthless.

I maintain that the poorer classes of patients get better services in this country than they do in those countries of the world that have Compulsory Health Insurance and that their medical requirements are at least as efficiently met as are their food, clothing and particularly housing requirements. This phase of the problem is an economic one and can not be solved by a palliative such as Social Insurance is.

(The effect of Compulsory Health Insurance on the quality of medical services will be further discussed in the next article).



## Illinois State Medical Society

### PROCEEDINGS OF THE HOUSE OF DELEGATES

*Springfield, May 17-19, 1932*

The first meeting of the House of Delegates of the Illinois State Medical Society was called to order at 3:22 P. M., Tuesday, May 17, 1932, by the President, Dr. R. R. Ferguson.

The President: We will first have the report of the Credentials Committee.

Dr. Charles D. Center: Your Committee on Credentials has seated 63 delegates from downstate, 31 from Cook County, and 8 Councilors, making a total of 102 voting delegates. I move you, Mr. President, that the action of the Credentials Committee in certifying these delegates be made the action of the House. (Motion seconded by Dr. C. E. Wilkinson, Danville, and carried.)

The President: The next order of business will be the roll-call.

The Secretary called the roll and announced that a quorum was present, 63 delegates from downstate, 38 Chicago Medical Society, and 8 members of the Council present and answering roll call.

The President: The House is duly organized for the transaction of business. We will have the reading of the minutes of the last meeting.

Dr. T. P. Foley, Chicago: I move that the minutes be adopted as published in the July, 1931, issue of the ILLINOIS MEDICAL JOURNAL. (Motion seconded and carried.)

The President: The next order of business is the reports of the Officers of the Society.

#### REPORT OF THE PRESIDENT

Your president has had a rather strenuous two years of inactivity, and is glad to be numbered among those present, even though it has been impossible for him to devote much time to the work of the State Society.

During these times of economic distress, just as in good times, the great burden of caring for the indigent sick has fallen heavily on the shoulders of the practitioner of medicine, notwithstanding the fact that his own income has decreased twenty-five, fifty or even seventy-five per cent. in many cases. But even under these adverse conditions the physician has performed his task cheerfully. And he will continue to carry on until this depression, the greatest debacle in history, and the greatest failure of big business and its so-called business-principles, shall have burned itself out.

On account of the depression, the membership of our State Society and of many county societies has suffered to such an extent that our income has been materially lessened. In January your president recommended to the Council a fifteen to twenty per cent. reduction in all expenditures, which recommendation he hopes will be acted on at our Springfield meeting. The Educational Committee budget has already been cut by about 52 per cent., but without impairing the power or influence of our Educational work. This has been done mainly by a 20 per cent. reduction in salaries to somewhat approximate the lowered income of the doctor who subscribes to the fund.

Your president also recommended to the Council the appointment of an economic committee to study the cost of medical care, the physician's income and allied subjects. By having such data, we would then be in a position to answer those self-appointed committees and foundations, which seem to think the Medical profession is overpaid, or that clinics, institutes, or corporations practicing medicine can, with the aid of newspaper advertising, give first class care at bargain-counter prices. Such a committee has been appointed.

During the past six months several instances have come to the president's attention, where members of our State Society are actually in dire distress, lacking even the necessities of life for themselves and their families. Your president believes that we should care for our own distressed members until they can reestablish themselves. He is therefore recommending the appointment of a council committee to study the feasibility of building up a reserve fund to be used in caring for our own distressed members.

Since the essence of our influence lies in our large membership and its thorough organization, it behooves every member of our State Society to sacrifice here and there in order that his dues to the State Society may be paid promptly, thereby keeping intact our medicolegal committee, our legislative committee, our educational committee, as well as continuing the splendid work of our councilors in their respective districts.

The Illinois State Medical Society can well be proud of her accomplishments in protecting the public from uneducated practitioners; for her great part in the defeat of the Jones (Sheppard-Towner) bill, and in fighting all paternalistic movements which are undermining our Constitution and destroying individual liberties.

The editorials in the ILLINOIS MEDICAL JOURNAL are quoted and copied the world over, and we are fortunate to have as our editor, Dr. Charles Whalen, whose fearless discussions are the basis of the popularity of our State Journal.

Your president wishes to acknowledge the fine work of our Secretary, Dr. Harold M. Camp, in his multitudinous and exacting duties, but more especially for the labor in the preparation of this Springfield meeting. An expression of appreciation is tendered to the local committee on arrangements for this splendid meeting; to the chairmen and secretaries of the Sections for their high-class programs, and to our distinguished visitors,

whose discussions have added greatly to the success of this meeting.

Respectfully submitted,

R. R. FERGUSON, M. D.,  
President.

The President: The next order of business is the report of the Secretary.

#### REPORT OF THE SECRETARY

Members of the House of Delegates:

Your Secretary in his report this year, does not present the two columns of figures which you have had imposed on you during the past, owing to the fact that last year the House of Delegates amended the By-Laws making the fiscal year from May 1st to April 30th, inclusive, consequently the various sums herewith reported from each component Society are actually for the fiscal year. I also wish to call attention to the fact, that owing to this change in reporting, all money reported as for the period from January 1st to April 30th, 1931, which represented a major portion of the dues collected during the entire year, do not appear in this report. This change for this year would give the impression that our income from component Societies is markedly reduced, which is not the case.

#### RECEIPTS FROM COUNTY MEDICAL SOCIETIES

May 1, 1931, to April 30, 1932

Adams .....	\$ 24.00	Kane .....	642.00
Alexander .....	134.00	Kankakee .....	56.00
Bond .....	63.00	Kendall .....	
Boone .....	84.00	Knox .....	182.00
Brown .....	32.00	Lake .....	548.00
Bureau .....	199.00	La Salle .....	679.00
Carroll .....	120.00	Lawrence .....	8.00
Cass .....	116.00	Lee .....	192.00
Champaign .....	253.00	Livingston .....	308.00
Chicago M. S. ....	27,176.00	Logan .....	\$ 80.00
Christian .....	248.00	McDonough .....	219.00
Crawford .....	161.00	McHenry .....	150.00
Clark .....	16.00	McLean .....	497.00
Clay .....	23.00	Macon .....	425.00
Clinton .....		Macoupin .....	200.00
Coles-Cumherland ..	246.00	Madison .....	866.00
DeKalb .....	267.00	Marion .....	55.00
DeWitt .....	99.00	Massac .....	72.00
Douglas .....	56.00	Mason .....	158.00
DuPage .....	330.00	Menard .....	32.00
Edgar .....	100.00	Mercer .....	35.00
Edwards .....	40.00	Monroe .....	38.00
Effingham .....	230.00	Montgomery .....	130.00
Fayette .....	70.00	Moultrie .....	56.00
Ford .....	120.00	Morgan .....	361.00
Franklin .....	156.00	Ogle .....	127.00
Fulton .....	192.00	Peoria .....	1,161.00
Gallatin .....	16.00	Perry .....	107.00
Greene .....	220.00	Piatt .....	73.00
Hancock .....	75.00	Pike .....	134.00
Hardin .....	35.00	Pulaski .....	65.00
Henry .....	201.00	Randolph .....	166.00
Henderson .....		Richland .....	
Iroquois .....	101.00	Rock Island .....	415.00
Jackson .....	253.00	St. Clair .....	785.00
Jasper .....		Sangamon .....	741.00
Jefferson-Hamilton ..	241.00	Saline .....	79.00
Jersey .....	48.00	Scott .....	
Jo Davies .....	16.00	Shelby .....	63.00
Johnson .....	48.00	Schuyler .....	

Stark .....	8.00	White .....	70.00
Stephenson .....		Whiteside .....	169.00
Tazewell .....	73.00	Will-Grundy .....	96.00
Union .....	101.00	Winnebago .....	626.00
Vermilion .....	995.00	Woodford .....	24.00
Wabash .....	88.00	Williamson .....	157.00
Warren .....	177.00		
Wayne .....	98.00	Total .....	\$44,509.00
Washington .....	113.00		

Subscriptions .....	\$ 148.50
Exhibits .....	1,975.00
Interest, Treasurer's Account .....	140.83
Interest, Bonds .....	2,958.12
Journal .....	20,000.00
Refunds .....	228.91

Total Receipts.....\$69,960.36

#### RECEIPTS AND PAYMENTS

May 1, 1931, to April 30, 1932

##### RECEIPTS

County Societies .....	\$44,509.00
Exhibits .....	1,975.00
Subscriptions .....	148.50
Interest—	
Treasurer's Account .....	140.83
Bonds .....	2,958.12
Journal, Advertising .....	20,000.00
Refunds .....	228.91

Total Receipts.....\$ 69,960.36

##### DISTRIBUTION OF RECEIPTS

General Fund .....	\$23,256.99
Medico-Legal Fund .....	10,863.22
Legislative Fund .....	7,355.65
Journal Fund .....	28,484.50

Total Receipts ..... \$ 69,960.36  
Cash Balance, May 1, 1931..... 63,569.32

Total.....\$133,529.68

##### PAYMENTS

General Fund .....	\$45,343.63
Medico-Legal Fund .....	8,445.01
Legislative Fund .....	7,396.62
Journal Fund .....	35,705.86

Total Payments.....\$ 96,891.12  
Cash Balance, April 30, 1932..... 36,638.56

Total.....\$133,529.68

#### CASH BALANCES, APRIL 30, 1932

General Fund .....	\$ 7,266.97
Medico-Legal Fund .....	8,445.01
Legislative Fund .....	10,616.71
Journal Fund .....	8,481.91

Total Cash Balance.....\$ 36,638.56

Bonds are held in trust for the Society at the State Bank and Trust Company, Evanston, Illinois, totaling \$76,000.00.

The cash balance as reported is on deposit in the name of the Illinois State Medical Society, at the State Bank and Trust Company, Evanston, and at the National Bank of Monmouth, Monmouth. All payments are made from the State Bank and Trust Company, Evanston, and no payments, except to the Evanston Bank, from the Monmouth depository bank.

The Annual Audit has just been completed by Fred N. Setterdahl, Certified Public Accountant, Rock Island, Illinois, whose official report is attached to this report.

#### MEMBERSHIP SUMMARY

Members in good standing, May 1, 1931.....	7,443
Dropped during the year—	
By death .....	122
By removals .....	51



Non-payment of dues.....	169	
By expulsions .....	8	350
		7,093
Reinstated during the year.....	104	
New members reported during the year.....	167	271
		7,864
Membership, April 30, 1932.....		7,864

With new members reported, others dropped, and with deaths among members, the exact membership of the Society varies from week to week.

Owing to the fact that several component Society Secretaries reported a number of members seemingly unable to pay 1931 dues, but desirous of retaining their membership, the Council has asked your Secretary to be lenient, and carry these delinquent members a reasonable period, giving them an opportunity to remit their dues at an early date, and this has been done.

In spite of the universal depression, the affairs of the Illinois State Medical Society will compare favorably, we believe, with those of any other organization. The Medical Profession has no doubt been called on to give more free service the past year than during any previous year in a long time.

As Medical Charity is actually the only real charity service given, we sincerely believe that arrangements should be made in every township in the state, to provide adequate medical service to all deserving indigents, at a reasonable rate paid to the physician giving the service.

The Educational Committee, and its sub-committee, the Scientific Service Committee, has given better service, and has done more work the past year, than ever before. It is our opinion that this service to the people of Illinois, and to our own Societies, is well worth the expenditure, and that the Educational Committee should not curtail the various activities that have been so successfully undertaken.

Although there have been many bank failures in Illinois during the past year, the Society has been unusually fortunate in its dealings with the many component Societies, and no money has been actually lost, and all checks have been paid, or replaced by others, with only a slight delay in a few instances.

The Sheridan Trust and Savings Bank, of Chicago, which was the depository bank for the Journal and Educational Committee funds, closed last July, with about six thousand dollars of these funds tied up. We have reason to believe that the Society will eventually receive a considerable portion of this money.

The Secretary's office has had more work to do on account of the fact that many Societies prefer to send small remittances for dues paid, rather than to permit a larger sum to remain in the banks. One Secretary remits dues as received by him, using postal money orders, on account of the fact that all banks in his county have closed the past year. We are willing to do more work to accommodate the Secretaries, and to protect the interests of all concerned.

The Council is to be commended for the fine work that has been done by this representative body during the past year. Many important problems have been

discussed, and cared for with the best interests of the Society served to the best advantage.

One new Society has been formed the past year, when an organization was perfected in Hardin County. Although a small Society, the proper spirit of determination has prevailed, and the Society should be a factor for much good in that county.

A Charter was issued on January 18, 1932, for a new Knox County Medical Society, with 42 Charter members. Much credit is due the physicians of Knox County for this reorganization, and also to the advisory committee suggested by this House to the Council at the 1931 meeting, the committee consisting of Drs. Chapman, Sloan, and Whalen. Dr. George S. Bower, of Galesburg, who organized the original Knox County Medical Society many years ago, is the president, and Dr. Louis N. Tate, the Secretary of the new Society.

Two new and highly important committees have been added during the past year, to the list, and each has functioned well, and should be encouraged by every member.

The Veteran's Service Committee, consisting of Thos. P. Foley, Chairman, Chas. D. Center, John S. Nagel, F. Garm Norbury and T. B. Williamson, has been working for a closer cooperation between the Society, and Veterans of all wars. One of the very interesting functions at this annual meeting, the Veterans' Luncheon, has been arranged by this committee. The report of the Veterans' Service Committee should be read by all delegates and every possible assistance should be given, to encourage them in their important program.

The Committee on Medical Economics has been procuring a vast amount of information relative to many economic problems of importance to all members of this Society. It is proposed during the next year, to start an intensive study, and a survey to give reliable information, as you will note from the annual report of the President, who first suggested this important committee. The chairman, Dr. Foley, will appreciate all assistance given his committee by the membership of the Society.

The Legislative Committee is once more to be congratulated for the fine work done during the recent session of our Legislature, and again the results are exactly 100 per cent of what was desired by the Society.

At this time, there are in most states, an increasing number of Mal-practice suits filed against Society members, but this is not the case in Illinois, and much credit is due our efficient Medico-Legal Committee, and their capable Legal counsel, Francis X. Busch.

We believe, without question, that the Illinois State Medical Society is doing more work on a lower per capita tax, than any similar Society in the Country. Last year the House of Delegates voted to lower the annual dues one dollar, and with this reduction in dues, the affairs of the Society have been progressing satisfactorily. It is our opinion, that the Annual Dues for 1933 should remain the same as they are at this time, \$7.00 per annum. We do not believe it is advisable at this time to make a further reduction, without curtailing some of the activities of the Society, and necessitat-

ing the sale of securities on which we would be compelled to take a loss at the present time.

We note in some Societies, on account of the increasing number of damage suits filed against members, a special medico-legal fund has been created, costing the member more than his annual dues, to receive the protection thereby afforded.

Quite a number of the State Societies have actually increased annual dues the past year from three to seven dollars per member, and we are informed that this increase has resulted in the loss of only a few members, showing the value of membership, in their opinion.

Your Secretary again desires to pay his respects to the large number of component Society Secretaries, who have so well cooperated with his office, for the best interests of the Society and its membership. Our appeals for assistance from time to time have met with an unprecedented response, and we have had no troubles whatever in these manifold relations.

We wish to go on record now, with a statement that it is our opinion that no State Society can possibly have a better group of Secretaries, each of whom realize their responsibility to their own individual component society, as well as to the parent organization, the Illinois State Medical Society.

We have been interested for some years, in the creation of a "Benevolent Fund," by the Pennsylvania Society, the income of this fund being used in the care of distressed members, especially those who have passed the age limit of their activity, and are in distress. We believe it possible for the Illinois State Medical Society to give this matter serious thought, and appropriate from time to time, a sum to be laid aside for a similar purpose.

We have lost the usual number of prominent members, and loyal workers in various parts of the state, during the past year. Most of these men have actually "died in the harness," in their endeavor to carry on the good work which they have done for so many years. As is the case in civil practice, we note that the leading causes of death among physicians are, Heart Disease, Accidents, Malignancy, Nephritis and Pneumonia. We hope that each County Society which loses an old faithful worker by death, will send a record of this man and his work to our Historian, Dr. Irving S. Cutter, so that reliable records may be had for future reference, in the archives of the Society.

The work of this Society, founded eighty-two years ago in the city of Springfield by twelve energetic and sincere members of our profession, must be carried on. These men working under handicaps that most of us cannot comprehend at this time, had the most sincere of all motives in their determination to help build up a profession which would be recognized by all citizens as a force for much good in this state. It is up to us as their successors, to carry on this work so that future generations will be better enabled to look back at us, as worthy successors of these valiant pioneers.

Respectfully submitted,

Harold M. Camp, M. D.,

*Secretary.*

FRED N. SETTERDAHL

PUBLIC ACCOUNTANT

224 Robinson Building

Rock Island, Illinois

May 2, 1932

Members of the House of Delegates:

Illinois State Medical Society.

This is to certify that I have made an audit of the following accounts of your Society:

Dr. H. M. Camp, Secretary,

Dr. A. J. Markley, Treasurer,

Dr. C. J. Whalen, Editor, and

Miss Jean McArthur, Secretary Educational Committee, of the year ended April 30th, 1932, and found the accounts to be correct.

Detailed audit report has been furnished the Council.

Respectfully submitted,

Fred N. Setterdahl,

*Public Accountant.*

Dr. Nagel: I move that the report be accepted. (Motion seconded by Dr. C. E. Wilkin-son and carried.)

The President: The next order of business will be the report of the Treasurer.

#### REPORT OF THE TREASURER

For the Year Ended April 30, 1932

Members of the House of Delegates:

Your Treasurer wishes to make the following report:

#### RECEIPTS

From the Secretary.....	\$46,861.41
From the Editor.....	20,000.00
Interest on Deposits.....	140.83
Interest on Bonds.....	2,958.12

Total Receipts .....	\$69,960.36
Balance, May 1, 1931.....	63,569.32

Total .....	\$133,529.68
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#### PAYMENTS

General Fund .....	\$45,343.63
Medico-Legal Fund .....	8,445.01
Legislative Fund .....	7,396.62
Journal Fund .....	37,705.86

Total Payments .....	\$96,891.12
Balance, April 30, 1932.....	36,638.56

Total .....	\$133,529.68
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(All funds deposited in name of Illinois State Medical Society.)

Deposited with the State Bank and Trust Company, Evanston, Illinois.....	\$18,518.01
Deposited with the National Bank of Monmouth, Monmouth, Illinois.....	18,127.50

Total .....	\$ 36,645.51
Less Checks Outstanding.....	6.95

Total as above.....	\$ 36,638.56
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There is held in Trust at the State Bank and Trust Company, Evanston, Illinois, in Bonds (par value).....	76,000.00
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Total Cash and Bonds.....	\$112,638.56
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Respectfully submitted,

A. J. Markley, M. D.,

*Treasurer.*



Dr. W. E. Kittler, Rochelle: I move that the report be accepted. (Motion seconded by Dr. O. W. Rest, Chicago, and carried.)

The President: The next order of business will be the report of the Chairman of the Council.

#### REPORT OF CHAIRMAN OF THE COUNCIL

The Illinois State Medical Society has had a harmonious and successful year, in spite of the many distractions of the general financial situation. I have no hesitation in saying that there is no organization of business men in this country which goes as steadily on, day in and day out, as ours; no one which is as vitally essential to the general welfare, as ours. One of the bright spots in the future, to me at least, is the fact that some of our self-appointed critics are beginning to let us alone and employ more of their time in attending to their own business.

The several branches of our administrative machinery have all worked very well. Each will give its own report. We are well cared for at Springfield; the comparatively few damage suits which appear throughout the State are efficiently handled. Our contacts with surrounding States are entirely cordial. That is particularly important in these modern days when an unscrupulous broadcaster in Iowa or Kansas can pollute the air of Illinois. It takes time, money and brains to handle these problems; they have to be handled promptly and vigorously. We have done, and will do, our share in such matters. I can assure you that is one of our standing and future duties. The situation here—and a gentleman's understanding between the various state societies is most essential, and important. This is one of the reasons why we have accumulated, and keep up, a moderate reserve fund. It takes money to fight lawsuits, and send men to talk before state legislatures and congressional committees. But with the class of men we have, it is money well spent.

Financially we have weathered the last year very well. The members of this Society throughout the state, with but few exceptions, pay up promptly. Our dues are less than in most states; you will remember that we even reduced them a little this year. The Secretary has been instructed to be as lenient as possible in the collection of yearly dues. We must continue, however, to urge their prompt remittance; for with an individual fee of only \$7.00 a year we must have all of them to do for you the work that we are doing. We had one small balance caught in a closed bank in Chicago; of our bonds in which we invested, the interest has been promptly paid on all. Their market value is only slightly reduced, and we do not have to sell them.

Pursuant to a resolution passed at the last annual meeting, a committee composed of Drs. Harger, Bundy, Wilcox, Center, Perisho, Foley and Camp, was appointed to consider the matter of Councilor representation for the Third District. That committee met in December, and its decision will be reported to you for consideration.

A most important matter for our consideration has arisen in the present establishment and future develop-

ment of the Government Hospitals. A committee, known as the Veteran's Service Committee, has been appointed to oversee and direct the general interests of the members of the Illinois State Medical Society. Dr. Foley of Chicago is the chairman; Drs. Center and Nagel are other Council members. To this committee have been added Dr. Norbury of Jacksonville and Dr. Williamson of Mt. Vernon; and it is the committee's plan to have associated with it a medical member of the American Legion from each county in the State. I wish to emphasize the fact that this committee has a big and important job, and is deserving of our constant and intelligent support.

The Knox County situation has been settled. At the request of 42 out of 47 men in that county a new charter was issued after their application at the Council Meeting in January. The Constitution and By-Laws submitted were reasonable and proper; every physician in the county was asked to join. Three or four, for reasons best known to themselves, refused. The Council did not feel that the expressed wish of 42 men should be disregarded, and issued the charter. So far as I know or believe our present Knox County Society is very satisfactory.

A letter received from Dr. Olin West under date of May 16, 1932, reads as follows:

"At a meeting of the Judicial Council of the American Medical Association held during the annual session of the American Medical Association in New Orleans, the Council had before it communications from Dr. A. C. Keener and Dr. J. C. Stone intended to renew an appeal taken from the decision of the Council and the House of Delegates of the Illinois State Medical Society rendered in 1930 and in 1931 whereby the charter of the Knox County Medical Society was revoked.

"After giving the whole matter its careful consideration, the Judicial Council refused to entertain this appeal, and, as Secretary of the Council, I am writing you this letter to advise you officially of this action of the Judicial Council."

Dr. Chapman was sent to Washington by the A. M. A. and the Illinois State Medical Society, to present our objections to and ideas concerning the Jones-Bankhead bill, a degenerate descendant of the Sheppard-Towner bill. Dr. Camp went to St. Paul, and also to New Orleans, to represent us in conferences of State officials. Both men represented our interests carefully and thoroughly. The choice of Dr. Chapman to speak before the Congressional Committee was in my opinion a decided compliment to him personally and to the society which he represented.

The last two years, and the next few years, have seen and will see little difference in the quantity and quality of medical practice. Babies will be born, and appendixes removed, and gall-bladders drained; there will be

measles and influenza, and pneumonia and heart disease and nephritis. But the economic position of medicine today demands, and deserves, constant and individual thoughts. The new township law for care of paupers; the rights of certain cults to practice indiscriminately in public hospitals; the sporadic attempts of local or national government to run our private individual business, are questions which are vital to all of us, and they are here. If you neglect them individually, you and yours will pay for your neglect in the near future. You 7,500 men cannot leave this to 12 Councilors. The council cannot fight these problems unless you actively take your own part, in your own communities. The time has gone by when the medical profession can neglect its decent business rights.

Respectfully submitted,

Cleaves Bennett, M. D.,

*Chairman of Council.*

Dr. Mather Pfeifferberger, Alton: I move that the report be accepted. (Motion seconded and carried.)

The President: I will ask Dr. J. W. Van Derslice to introduce the President of the American Medical Association.

Dr. J. W. Van Derslice, Oak Park: It is a great pleasure and privilege to stand before you to introduce our distinguished guest. He is a son of the great state of Texas, the panhandle state, but we of Illinois consider him as an adopted son as he for many years has selected our great summer resort Chicago, for his summer home.

The medical profession of Illinois has learned to love him, not only for his scholarly and scientific attainments but also as a wonderful companion.

As President-elect of the American Medical Association he has done outstanding work. He has given of his time and talent most generously. Our distinguished guest has the opportunity to do much for our profession, as he is in a very fortunate position, as he not only has the entire confidence of the medical profession, but also, has an entree to the financial men of this country which few men enjoy. All this he brings to our aid. I take great pleasure in introducing to you Dr. E. H. Cary, of Dallas, Texas, President of the American Medical Association.

Dr. Cary: It is indeed a pleasure to come here as your invited guest and to be presented so magnanimously by one of your distinguished members. You know having lived in a country with broad prairies, naturally I find Illinois a place which arouses my pleasure and love. I

come through Illinois every year and as I come up here I think of the broad prairies, beautiful land and the great things you can grow upon the land. Not only that, I love to come to Illinois because of the profession you have, the educational value of the profession and what the profession has been able to do along educational lines. I love Illinois because the profession of medicine has its center in the city of Chicago. It means so much to the medical men of the country. So often medical men do not appreciate what organization means, what it is able to accomplish for them. I often wonder in this great technical age in which we find ourselves struggling like all other people in the desire to readjust our practices to meet the new situation as it confronts us, if we appreciate that nothing in the world will help us so much as an organized band of doctors who are faithfully cooperating together. We have new conditions to confront us unquestionably. Dr. Van Derslice has alluded to one which I think is very vital and that is, the continued effort on the part of a certain portion of our citizenship to secure for themselves advantages through the government which will in all probability engulf the medical profession far beyond which we think now. I think it is true that with proper understanding and the proper start we have, we will be able to confront the government and to confront the selfish interests in many quarters and be able to save for ourselves that relation with the public that the private practitioner should have. If, gentlemen, we do not stand out against the forces that will invade the profession of medicine, I am quite certain that the rights of the practitioners will be disregarded. We are more than a monarchy; we are the great majority when it comes to members and to a sound basis, namely, the principles of scientific medicine. That great mass of doctors, 140,000 strong, if the practice of medicine is invaded much beyond what it is along certain lines, we can make a front which will be difficult to overcome. We ought to stand out boldly for the old days as far as we are concerned, for that relation with the public we have always had and we should not have that changed. There should not be two doctors, the common doctor and the government doctor; there should be just us.

It is a great pleasure to be here. It is a great



pleasure to be one of you. I cannot bring you very much, but I think going about the country and meeting with you gentlemen and keeping my eyes and ears open, I may be able to carry from one to the other a word and I might be able to stimulate cooperation and through that cooperation we might be able to carry on the problem whatever it may be.

The President: We will continue with the reports of the Councilors.

#### REPORT OF COUNCILOR FIRST DISTRICT

The physicians of the First Councilor District, and I have talked with many of them, are the most optimistic group of business men it has been my pleasure to meet. The depression has hit the physicians as hard as any other group, but the are doing more than their share to relieve the suffering in their community without thought of compensation. Physicians' fees in general have been reduced with a majority of the work that they are doing. Even though the fee bill in our community has not been reduced the physician is receiving much less for his services than he did a few years ago. The question of a general fee reduction is being considered in many counties.

The First Councilor District has been inviting several county societies to attend their regular meetings and the attendance is often over two hundred. These group meetings promote friendship, enable better meetings to be held and should be encouraged.

The silver lining in the cloud of depression that is over us probably lies in the fact that due to the persistent demand for lower taxes the State will cease its activities which were rapidly plunging the entire United States into State medicine. It is becoming evident that the individual should do, and has a right to do some things for himself, and that taxes should be reduced to the minimum.

Respectfully submitted,

Edward H. Weld, M. D.,  
*Councilor First District.*

#### REPORT OF COUNCILOR SECOND DISTRICT

Members of the House of Delegates:

The Councilor of the Second District has attended all Council meetings and has visited each county society one or more times during the past year. He has also endeavored to keep in personal contact with the secretaries of all the county societies in order to assist them in arranging their meetings and looking after business details of their societies. In addition to this he has made numerous talks to lay groups at the request of the Educational Committee, and has attended a number outside of his district.

Every county is well organized and holds regular meetings. All societies have had good programs and good attendance. Most all of them hold monthly meetings. La Salle county has been holding monthly clinics at the various hospitals throughout the county in addition

to their monthly meetings for the past several years. Woodford county, one of our small but most active counties, holds regular monthly evening meetings with a dinner, and quite often arrange to have the wives present at the dinners, with a social program for them. In addition to this they hold an annual doctors' family picnic and golf day. Lee county has held a number of very interesting and instructive meetings with a dinner at the Dixon State Hospital. Invitations were sent to all physicians in the surrounding counties, and the hospital staff presented a large number of interesting clinical cases in their institution.

Bureau and Livingston societies have held several good interesting meetings with good attendance.

The U. S. Veteran Hospital at Dwight, Livingston county, holds monthly lectures by outside specialists. Their invitations are sent out to all the outside neighboring physicians and there usually is a good attendance of county members, which serves about the same purpose as a regular county meeting.

Since the advent of hard roads practically all of our county societies have changed the time of their meetings from day meetings to evening meetings preceded by a dinner. This makes it more convenient for the doctors to attend without loss of time from their office work. A six o'clock dinner followed by a program is quite attractive to the membership from a social standpoint, as well as a scientific interest, and is more favorable to good attendance than a day meeting.

Business depression has affected adversely the income of most all of our members, and yet there are very few delinquents throughout the district. Practically every physician throughout the entire district, who is in active practice, is a member of our society. Most all of the county societies have given one or more meetings to Medical Economics and General Business pertaining to the profession, in the efforts to try to adjust themselves to the general depression of the country.

Most of the secretaries have made good use of the scientific program committee in arranging their programs. By means of it they have had excellent programs and have been well pleased with the service rendered them.

Mrs. A. B. Middleton, of Pontiac, who is councilor for the Women's Auxiliary in the second district, has been quite active in her efforts to get every county in the district organized.

Your councilor is pleased to report that peace, harmony, and good fellowship prevails throughout the district. There have been no malpractice suits or charges preferred against any of the members. There has been very little change in personnel or number from last year, as there have been very few deaths or arrears in membership, and this has been just about offset by new members moving into the territory.

Respectfully submitted,

E. E. Perisho, M. D.,  
*Councilor Second District.*

#### REPORT OF COUNCILOR THIRD DISTRICT

The Third Councilor District is composed of the seven

counties of Cook, Lake, DuPage, Kendall, Kankakee, Will and Grundy, the last two counties forming the Will-Grundy Counties Society.

The Chicago Medical Society is still the largest County Society in the United States. This great organization geographically divides itself into fifteen component branches. Monthly meetings are held by these various sections of the Chicago Medical Society and the average attendance is well over twenty percent of the membership.

The Chicago Medical Society has done remarkably well in retaining its large membership in the face of the depression that has been felt in all organizations.

Particular mention is made of the effort of the Irving Park Branch to meet the additional calls on the medical profession by organizing in its territory a clinic maintained and operated by the members of the Branch to have an established place where indigents of their territory may be cared for on an orderly basis. It is expected that this Branch will have an interesting report in the near future.

The Will-Grundy Society holds weekly meetings. These meetings are devoted not only to the discussion of scientific papers but also to the consideration of economic questions. They are well and enthusiastically attended.

Kankakee County has solved the question of the care of the indigent poor of that County by the County Society and a detailed report of this would add an interesting chapter to the advisability of all county organizations following in their footsteps.

Lake County is always active and have had a successful year. DuPage County continued as it always has as a live energetic county organization.

The economic problems of the physicians of the Third District are the same as those of the rest of the State and this intriguing question naturally has received more attention during the past year than at any time. It is hoped that this situation will have a brighter aspect in next year's report.

Respectfully submitted,

Thomas P. Foley, M. D.,

*Councilor Third District.*

#### REPORT OF COUNCILOR FOURTH DISTRICT

The past year has seen some change in the condition of medical affairs in the Fourth District. At least one hospital has closed permanently and many others have been forced to curtail their activities. Society meetings, however, seem to have gone on in their usual manner and attendance upon these meetings has been fairly good. The councilor for this District has, as usual, visited several societies when invited. When there was no specific request, no visit has been made. All council meetings were attended excepting one, where attendance was impossible because of conflicting dates.

At the last annual meeting it was the painful duty of this councilor to report the loss of the Knox County Medical Society, by revocation of the charter. At that time, the House of Delegates appointed a special committee composed of W. D. Chapman, E. P. Sloan and

C. J. Whalen to see what could be done about settling the local trouble to such an extent that the Society could be reorganized. The committee has functioned well and it is a pleasure to announce that a new charter has been granted to the Knox County Medical Society, and that it is again a component Society of the Illinois State Medical Society. The new Society is properly organized and has forty-two members. All the old members were given an opportunity to join and forty-two had signed the application blank before the new charter was granted. Too much credit cannot be given these members, for, with some of their previous troubles still unsettled, they have all compromised their affairs to such an extent that the Society is now functioning in a normal manner under the presidency of Dr. G. S. Bower, who also organized the original Society many years ago. I know that these Knox County men have the good wishes of the entire State Society membership for a successful future.

One serious loss was in the death of Dr. George Weber of Peoria, who for many years was the efficient secretary of the Medico-Legal Committee. He will be missed by all down state members who may get into medico-legal troubles.

Respectfully submitted,

E. P. Coleman, M. D.,

*Councilor Fourth District.*

#### REPORT OF COUNCILOR FIFTH DISTRICT

The yearly reports that have reached my office in the past few days from the counties of the Fifth Councilor District have surprised me as to the small loss of membership from delinquency during the present stress of economic conditions. This, I think, is encouraging to organized medicine, which is sorely in need of stimulation from any possible angle.

There was a total membership in the Fifth Councilor District in last year's report of 309. This year, there are 313, a gain of 4. The losses were: 7 by death, 6 by removal, and 4 by non-payment of dues. Each year, the former plans and ideas used to help and stimulate a county society by the Councilor, must be given a new approach, and personal assistance rendered in the solution of new problems, which, while not common to all societies, may be definitely individual to others.

Accompanied by a physician who has had a long and broad experience in organized medicine, I recently paid a visit to two counties some distance from Springfield. He was enthusiastic as to the results of our personal contacts with the members of each society, and a discussion of their problems.

New to me oft times, or at least from a different angle, are the questions which arise for solution in the various county societies, and the deep personal interest manifested by each member is certainly gratifying.

No doubt, the effectiveness of a Councilor is to be measured largely by the sum total of ideas that originate from the members and officers of the various county societies in his district. Ideas that are successfully put into effect each year.

So with the failures, we learn by experience, that an



outstanding officer of some society is a pivot man of the district, to be depended upon for the success or the failure, in the application of these ideas.

McLean County has had an outstanding year in the frequency they have entertained as guest speakers, men nationally known in the field of medicine.

Five of our counties, in number of meetings and activities have accomplished more in the past year than formerly. These are: Sangamon, McLean, Logan, DeWitt, and Iroquois.

Four have held their membership without much activity: Menard, Mason, Tazewell and Ford.

Two counties, DeWitt and Ford, did a county-wide administration of Toxoid to all children of the grade schools, and in DeWitt, about 3,000 children in the county alone—even the younger members of the high school.

The conditions, during and since the war, that have so changed the economic situation of the country, have also had their influence upon the medical profession. So, that it is important for the profession to study and discuss its problems, that this economic situation may be more definitely understood. In this way, the profession in each locality will have a better conception of the general consideration of these changes and will be able to plan and meet the situation within its own organization.

As stated by one physician: "Let us attempt to create a friendly rivalry, not a competitive race; instead of trying to do more work, do what we have, better."

May we ever measure up to our duty, and may we continue as heretofore, to practice and exemplify the true spirit of altruism, and to believe, as all true physicians, with Louis Pasteur, who said that he believed, "that the future belongs to those who serve humanity best."

Respectfully submitted,

Samuel E. Munson, M. D.,

*Councilor Fifth District.*

#### REPORT OF COUNCILOR SIXTH DISTRICT

To the Officers and Members of the Illinois State Medical Society:

The most noteworthy picture within the ranks of the profession in the Sixth Councilor District for the past year is:

First: The very distinct spirit of cooperation which is everywhere shown.

Second: The very evident determination to "carry on," in the face of economic adversity, reduction in Society membership, and discouragements of usual, and unusual character.

Within the memory of your councilor there has never been a time when there was shown such a "never say die" spirit as there has been during the past year, nor can he remember a time when there was such a determination shown by individual practitioners, to stay within the fold of organized medicine.

Your councilor has been able to respond to every call, for speaking date or otherwise, made by his counties during the past year.

Of the eleven counties, seven of them have active medical organizations; one has no medical society, and three have organizations which are more or less somnolent. It may be said, however, that in two of the three counties so classified, there is an active spark at work which bids fair to burst into flame at any time.

After January first of this year the County Societies of the Sixth Councilor District received a questionnaire, and some of the answers to some of the questions are very illuminating.

To one question, "What do your members find the greatest handicap in their practice?" there came the expected answer, "Collections," but there were also, "Lack of a hospital," and "Patients going to out of town clinics."

To another question, "What do your members find their greatest asset?" came such answers as these:

"Team work, developed by attendance at local and County meetings," "Good will of the people," "New hospital, just opened, with regular meetings of the staff members."

To another question: "What changes, or suggestions for changes, does your Society recommend to the State Society?" all but one answered, "None."

One Society answered, "That State officers be required to visit each of the component Societies at least once every two years."

To the last question in this list: "How can the State Society or your Councilor, help your Society?" the answers ran from "Reduce annual dues," to "Furnish us speakers," and "Keeping us acquainted with problems of State-wide interest," and one answer in particular which shows active knowledge and appreciation of the endeavors of the State Society, "By continuing the best State Medical Journal in the U. S. A. By continuing the work of the Educational Committee, in furnishing speaking talent, and in supplying legitimate propaganda."

This questionnaire developed farther that within the eleven counties of the Sixth Councilor District, the year had produced two suits for malpractice. Also, every county reported that the fraternal feeling among members of each society was warm and good.

All of this goes to show that through the State Society with its many angles of benefit, there is being brought about a unification of medical sentiment and medical opinion within the State, and a developed interest which results in close cooperation for the good of all of us.

Respectfully submitted,

Charles D. Center, M. D.,

*Councilor Sixth District.*

#### REPORT OF COUNCILOR SEVENTH DISTRICT

The Councilor of the Seventh District reports that no situation within the district has changed very markedly during the year, unless it be in the increasing number of delinquent members resulting from the depression. It is the hope of the Councilor that the State Society will grant as much latitude as possible to such members.

As in former years, Society interest has been in direct

proportion to the numerical strength; the larger societies maintaining a high standard program with active interest and large attendance. Several of the societies have drawn upon the resources of the scientific service committee, with gratifying results.

All the twelve counties have kept their organizations intact. Not a few of the societies have dictated the policies to lay organizations in health matters, instead of being dictated to, as in former years, which is a very hopeful sign.

Unusual political interest has been observed during the primary campaign, and it is the hope that it will continue until after the November election.

Respectfully submitted,

I. H. Neece,

*Councilor Seventh District.*

#### REPORT OF COUNCILOR EIGHTH DISTRICT

The Eighth District has had an unusually quiet year so far as its Council relations are concerned. I am glad to be able to state that no troubles have been reported in the district, and no malpractice suits or other professional annoyances have been brought to my attention. The ever-present question of medical service for the indigent poor was modified somewhat by the law passed last summer, and industrial conditions have undoubtedly increased the quantity of the work. According to individual local conditions, it is being handled in different ways, and I am sure as successfully as in any district in the state.

The individual County Societies in the district have all kept up their meetings excellently. Last fall a letter, briefly detailing the work and financial conditions of the State Society, was sent to each physician in the district, so that all might know the business standing, if it might be so called, of the state organization.

I wish particularly to thank, and to praise, the doctors of this district for the way they have paid their dues during the last year. We are emphatically an agricultural district, and no one knows better than I do what the country doctor, especially in the smaller and entirely agricultural towns, has to contend with financially. But they are not complaining, they are doing their good work just the same, and they are doing their good share in keeping their State Society a "going concern." For all of which I am personally very proud of them.

Respectfully submitted,

Cleaves Bennett, M. D.,

*Councilor Eighth District.*

#### REPORT OF COUNCILOR NINTH DISTRICT

Your councilor of the Ninth District has no lengthy report to make for the past year.

Our organization in this District is in good condition and all meetings seem to have been well attended and an unusually good interest taken.

All past difficulties seem to have been ironed out satisfactorily, and a good friendly spirit among physicians is very manifest. All component societies are

doing splendid work and those that I have attended have had excellent programs.

I have been unable to attend all societies during the past year, but have kept in touch with their work.

Several of our counties bordering on the Ohio river are so small and have so few physicians that the attendance is necessarily small, yet the spirit of enthusiasm is just as great as in larger counties. Three counties have so few physicians living in their borders that it has been impossible for each of them to maintain an individual organization, and for that reason petitioned the Council for the privilege of combining the three into one society, for social reasons mainly, but reserved the right of each county sending a delegate to the State Society.

After careful consideration, the council granted their petition, and now as a result they have one of the most flourishing little societies in the district.

Some little feeling has come up in some of the counties over mine contract practice, but I think the matter can be amicably settled. The outlook for the coming year is flattering.

Unfortunately, owing to the existing depression, there are quite a number of members delinquent in their dues, but am hopeful that they may soon be able to meet their annual dues in a short time.

Respectfully submitted,

J. W. Hamilton, M. D.,

*Councilor Ninth District.*

#### REPORT OF COUNCILOR TENTH DISTRICT

Activities among Medical Societies of the Tenth Councilor District have increased during the past few years, due to better methods of transportation and a desire among our members to better equip themselves to take care of the physical needs of their patrons.

Randolph County—Among the most notable improvements Randolph County has been especially conspicuous. They held seven meetings in the past year in five different towns in the county. At all of these meetings foreign talent was present to assist in the program. The Educational Committee and State Department of Health both assisted in securing speakers, all of whom were outstanding men of ability.

Randolph County invited members of other counties, who by their presence added to the interest in discussions and helped promote a more fraternal feeling.

The total membership of the county is twenty-one active members, and two honorary members. There are still six physicians in the county who do not belong.

Two of the members, Dr. W. A. James of Chester, and Dr. J. W. Weir of Sparta, have been in practice over fifty years. Their creditable work for the profession and public are due to be recognized in a short time. One member died during the year, Dr. H. C. Adderly, aged seventy-seven years.

Randolph County physicians are encouraged and anticipate more successful years to come. They have a very active Ladies' Auxiliary.

Alexander-Pulaski County—These counties had nine regular meetings during the year, two of which had



speakers from the Educational Committee. One was a joint meeting with the Dental Society and at another educational moving pictures were shown. One program was furnished by Dr. Horstman and Dr. Hrabik, of the Jackson County Society, and other programs were supplied by home talent.

The Society lost Dr. Henry A. Davis, age sixty years, who died on March twentieth. Every active physician in the city of Cairo belongs to the Society and two in the county outside.

Alexander and Pulaski are holding joint meetings but have two separate organizations and both are represented in the House of Delegates. The Pulaski County Society holds but one separate meeting a year, that is to elect officers and transact such business as may come before it. The members attend regularly the Pulaski-Alexander County medical meetings, doing their part in the discussions and all things necessary to help make the meetings successful.

Dr. Hall Whittaker, of Pulaski County Society, one of the members who was physician at the Anna State Hospital, died November 24, at the age of sixty-two years. Dr. Whittaker had been active in the Medical Society work for many years and also had been a member of the Illinois Legislature.

Washington County—The members still read the Journal, pay their dues, and have an occasional meeting with round-table programs. They have not lost any members during the year.

Perry County—The Perry County Medical Society held six meetings since April 15, 1931. Speakers from St. Louis, Chicago, Charleston, and local men furnished the programs.

Perry County has had a better year than for some time and we feel that we are getting a good start toward having at least nine meetings a year.

The grim reaper took one from our midst during the year, Dr. H. W. Wolfe, age sixty-one years. He died September 18, 1931.

Union County—Union County Medical Society held six regular meetings during the year. Three of the scientific programs were furnished by local men. Speakers from the Educational Committee, Dr. Frank Deneen, of Bloomington, and Dr. Rafferty, of Robinson, Illinois.

Union lost two members during the year, one by moving from the state and the other by impaired health and discontinuance of practice. Two new members were gained by election.

Jackson County—As usual, Jackson was among our most successful societies, holding ten meetings with an average attendance of twenty, and only twenty-two paid members for the year. Five papers were given by local members and ten speakers furnished by the State Educational Committee.

One death, that of Dr. Wm. H. Evans, occurred December 28, 1931. Dr. Evans was in the prime of life and though suffering from a chronic ailment the past few years, had been doing splendid work. To show their appreciation, more than twenty-five physicians attended his funeral.

Jackson County is composed of an unusual per cent

of loyal fellows who not only make their own society a success, but are ready and willing to help others with their programs.

St. Clair County—St. Clair County is, as many of you know, composed beside the County Society, of a branch organization in Belleville.

Belleville lost during the year two members, Dr. A. E. Hansing, age eighty-one, and Dr. A. L. Muren, age forty-two.

A meeting was held by each society each month except July and August. They had a joint meeting in June at the St. Clair Country Club, and the May meeting was held in connection with the Illinois State Medical Society in East St. Louis. In October the Ladies' Auxiliary was organized and has since been functioning successfully. The November meeting was dispensed with, or rather the members attended the Southern Illinois meeting at Olney instead of their own. In December both societies elected officers and were addressed by the retiring presidents, Dr. H. J. Frein of Belleville, and Dr. J. B. Beykirch of East St. Louis. Both held good meetings in January and a joint banquet followed by bridge, dancing etc. There were also good meetings in February, March and April with well known speakers.

Altogether St. Clair County, although entertaining Illinois State Medical Society during the year, had good programs that were well attended, with good speakers and were very profitable to the members.

Monroe County—Monroe County Medical Society did not have any meetings during the year, but we hope to help them in some way to do better in 1932.

Respectfully submitted,

J. S. Templeton, M. D.,

*Councilor Tenth District.*

Dr. C. E. Wilkinson, Danville: I move that the reports of the Councilors be accepted. (Motion seconded and carried.)

The President: The next order of business will be the reports of the Standing Committees.

#### REPORT OF PUBLIC POLICY COMMITTEE

Two members of the committee were together on one occasion recently to discuss the work of this committee. During the past year two new committees have been added to the list of committees of the Illinois State Medical Society, the Veterans' Service Committee, and the Committee on Medical Economics. It was doubtless the intentions of those founders of our Society to have the Public Policy Committee consider those problems coming up from time to time, of an economic nature, although, unfortunately, in the past the committee has had but little to do except make suggestions which were usually not acted on. It is the belief of your committee that the Public Policy Committee should have some constructive work to do, and we wish to take this opportunity to offer our services to the Veterans' Service Committee and Committee on Medical Economics, to aid them in whatever capacity they prefer, but we believe there are many important consider-

ations especially of an economic nature, at this time, which should be given consideration. The subject of Medical Economics today is one of the most important considerations before the Medical Profession.

We believe that a comprehensive survey can be made in Illinois during the next two years, to get accurate information relative to the distribution of physicians, the capital investment, net income, and many other important considerations that will be of inestimable value to the profession at this time. This committee, therefore, offers to assist the Committee on Medical Economics to procure this information, if they desire to do so, and it is the will of this House of Delegates.

During the year there are a number of important matters coming up over the State, such as controversies with insurance companies over claims for services from members of this Society. We believe that there should be some committee provided to give them the proper considerations, and that this is the proper committee to aid the physicians with these troubles. There are many life insurance problems today, of vast interest to our profession, and the ever increasing problem of the physician and hospital failing to receive adequate compensation for the care of emergencies of an accidental nature, should receive our most earnest consideration.

We again wish to state as a matter of record that the Public Policy Committee can be made a liaison committee to aid other important committees, and various other matters of Public Policy can be referred either by this House of Delegates, or by the Council from time to time, and we wish to assure each of them that we are always ready to offer our services when requested to render any assistance whatever.

Respectfully submitted,

Frederick H. Muller, M. D.,  
*Chairman.*

H. J. Way, M. D.  
George Michell, M. D.  
*Public Policy Committee.*

#### REPORT OF LEGISLATIVE COMMITTEE

"The doctors in my District do not seem to care who is elected to the Legislature, and from my observation, only about half of them even go to the polls to vote. However, I am a sincere believer in their ideals and shall continue to vote in their behalf, which, in my opinion, is for the best interests of the public."

Thus spoke one of the leaders in the Legislature here in Illinois. Although we do not believe that this same experience is uniform throughout the State, however, it is a sad commentary on the medical profession, if, through individual carelessness, laws may be passed which are inimical to the best interests of the citizens of our State.

It is not to be hoped that a defensive program can always win, and while, obviously, it is unnecessary for doctors to take their time to actively engage in political campaigns nevertheless, if the individual physician does not accept his responsibility as a voter, and exercise his influence in the community in which he resides, by, at least, becoming interested in the charac-

ter and the type of candidates seeking election to the General Assembly, no small amount of blame can rightfully be charged to the medical profession if laws are passed that lower the safeguards of the public health.

This report is being submitted a few days after the recent primaries and, from all portions of the State, it is quite evident to your Legislative Committee that the physicians are awakening and are studying more carefully the candidates seeking the nomination for the General Assembly. It is very commendable that when a common enemy appears the medical profession does rally and takes an active part in defeating him. This was true in one of the Senatorial Districts in down-state Illinois this last primary, when a cultist not only was on the ticket for the General Assembly, but made a spirited and persistent campaign. A most laudable thing to observe is that the physicians of the two counties which composed this particular Senatorial District rallied and brought the facts before the voting public, with the result that the cultist was defeated, and the danger of his influence in the Legislature averted.

Your Legislative Committee has been unusually alert during the recent primaries, and more than thirty leading members of the General Assembly, who had favorable records in reference to health laws, were given aid by the Illinois State Medical Society in the form of letters of endorsement, and it is gratifying to notice that a great majority of these candidates were successful in being re-elected.

The Legislative Committee does not advocate the candidacy of any aspirant, but if he has been a member of the Legislature, and has shown a willingness to study, and to aid in passing good laws and opposing laws designed to lower the present health standards, the Committee believes it to be its duty, if asked, to endorse the record of the candidate regardless of which party he may belong to.

Candidates seeking election for the first time are never endorsed by the Legislative Committee even if the candidate is a prominent physician in his District. Endorsement is given only to those candidates who have proven in the Legislative Chambers that they believe the recommendations of the Illinois State Medical Society are sound and for the best interests of the people of the State.

Throughout the State, there has been a noticeable increased interest through physicians becoming more personally acquainted with the candidates who are seeking election. This is indeed important when we realize that the Anti-vivisectionists, the Cultists, and all other groups seeking special legislation are continually lobbying, not only during the session of the General Assembly, but practically throughout the entire year. It should not be taken for granted that a legislator understands the difference between good and bad laws relative to the public health when only one side of the question is heard by him.

It is to be noted that a great majority of the States have succumbed to pernicious and low-grade medical laws, which situation is due almost entirely to the apathy of the medical profession in those States. The



members of the Illinois State Medical Society are to be congratulated that this condition does not exist in this State, which is due to the careful supervision of such matters by the Council and the Officers of your Society.

Your Legislative Committee is closing its report with extracts from its Final Bulletin, issued immediately after the adjournment of the last session of the General Assembly:

"Perhaps the economic depression had something to do with it. Whatever the cause, the recently adjourned session of the General Assembly was deluged with an unprecedented flood of bills, many of which would influence in one way or another the status of the physicians of Illinois. There were 2,031 bills introduced and about 200 were of especial interest to physicians. Tedious in extreme, it was, nevertheless, incumbent upon your Legislative Committee to review line for line each of the 2,031 bills in order to be fully informed of provisions which were of significance to the medical profession and to public health.

"Those who wanted to break down the standards of medical practice appeared to have plenty of time and money to spend at the task. They manifested superior technique and great skill in lobby maneuvering. Their plan with the legislators was astutely devised as to make a tremendous appeal to those powerful human emotions which create spontaneous sympathy for the 'oppressed' or 'underdog.' This strategy was pursued in such a way as to awaken no thought in the legislators concerning the interests which the public might have in medical matters. This method of procedure gave the cults an unusual degree of favor and even carried over to their side a few legislators who heretofore had stood steadfast for high educational requirements in medical practitioners.

"Among the many cult bills creating new laws for special privileges the two osteopathic bills offered the most serious threat to the medical standards of Illinois. With 20 'ayes' they lacked but 6 votes in the Senate of carrying legislative approval which, if successful, would have given the osteopaths full and unlimited rights to do surgery. This is but one illustration of the difficulties incurred by your Legislative Committee in the Senate this year. Apparently the smaller membership led cult lobbyists to concentrate their efforts on that body. The economic unrest opened the way for the cults to bring what appeared to be a strong popular pressure to bear upon the Senators. On one occasion the Senate resolved itself into a 'committee of the whole' to listen to what the cults had to say—a privilege usually reserved for none but the most important measures.

"A particularly dangerous type of legislation, from the public health viewpoint, found expression in House Bill No. 484 which was the work of our friend, Percival L. Clark, of Sanitology fame who never misses a session of the General Assembly, who is the founder and administrator of the Percival L. Clark Foundation for Health Research. The bill was in the form of an amendment to the public school law and found audience under the innocent appearing and quiet title of 'AN

ACT TO ESTABLISH AND MAINTAIN A SYSTEM OF FREE SCHOOLS' APPROVED JUNE 12, 1909, AS AMENDED.' This measure would have prohibited all public health work and health instruction in the public schools and would have reduced Illinois to the scientific level of another state which denounces the theory of exolution by legislative fiat. House Bill 484 got sufficient attention from the General Assembly to be introduced and referred to the House Committee on education. It required attendance at the Committee hearing by a representative of the State Medical Society because chances dare not be risked in legislative matters. Dr. Andy Hall was instrumental in killing the measure in the Committee. Pledging and soliciting votes and the exchange of 'senatorial courtesy' might produce surprising results under circumstances of reduced vigilance.

"Another situation which illustrates the everlasting vigilance necessary to prevent bad legislation and aid the desirable is the usual system of procedure which crowds the legislative calendar during the closing days of the session. Final action on fully one-half of the 2,031 bills was deferred until the last two weeks of the session this year. The members were tired and wanted to go home. Most of the outstanding bills which had strong support or opposition had been decided upon. The hot weather reduced both interest and energy. Under these circumstances good bills often die from sheer lack of some interested person to see that a legislator calls the measure for action. Bad bills may get through because nobody takes the trouble to be on the job and to call attention to undesirable features. It is well to take no chances during the closing days if there remain before the Assembly any live bills of interest to the Society.

"The circumstances required your Legislative Committee to function with exceptional alertness, unusual vigor and tenacious perseverance. More than 8,000 pieces of literature were sent out on one occasion during a single week by your Committee. These included communications which went to 'key' men in the medical profession in every Senatorial District in the State.

"The splendid cooperation and effective work of the medical profession throughout the State overshadows completely the irksomeness of lobby duty and prompts your Legislative Committee to express its deep appreciation for that sympathetic and highly intelligent support which made possible the satisfactory results obtained. Prompt and appropriate responses on the part of the physicians to suggestions for action had a very telling effect upon every delicate situation which developed here in Springfield. The officers and councilors of the Society responded effectively to every request made upon them. The Chicago Medical Society and the Educational Committee were very helpful and effective. The editor of our medical journal gave every communication from the Legislative Committee prompt consideration.

"Cook County was never better organized for expressing the views of the medical profession upon legislative matters. Each physician in the Metropolitan area

was listed according to Senatorial District. That system made possible the concentration of effort at the point where the need was greatest. Due to this well devised organized system on a number of occasions during the recent legislative session, legislators were effectively reached at an opportune moment in pivotal areas in response to communications from your Legislative Committee.

"The *modus operandi* of your Legislative Committee shows the effectiveness of work done by the medical profession on legislative matters. A system of checking on the attitude of each Senator and Representative was inaugurated in the office of the Chairman. The vote of each legislator on bills of interest to the committee was checked against the record of whether the legislator had been interviewed either personally by his family physician or through some other contact. An overwhelming majority of those interviewed voted satisfactorily to the interests of the medical profession. Legislators from districts where the medical profession was apathetic and took no significant interest in the controversies almost invariably favored the cults and drugless healers. This history shows clearly how legislation in this country must be influenced.

"All difficulties to the contrary, however, the Society carried through its entire legislative program without a single setback. Without the splendid, sympathetic, prompt and appropriate cooperation of practically every physician in the State whose assistance was solicited, this success could not have been obtained.

"Inquiries, requests for advice and assistance and letters of commendation which have come from quite a number of States indicates that the Society's legislative work in Illinois has attracted wide recognition. A very complimentary letter pertaining to this activity was received through Dr. Woodward of the A. M. A. from a prominent physician in London who desired more detailed information for use in combatting the cult problem there.

"The Legislative Committee wishes to acknowledge with deep appreciation the receipt of hundreds of congratulatory letters. The Chairman made it a point to answer every personal communication sent to the Springfield office. The name of each physician who took the pains to write was placed upon the permanent mailing list of the Committee which now embraces nearly 2,000 names well distributed throughout the State.

"The final report would be incomplete if it did not recognize the unfailing help of the officers and councilors of the Society who in every way aided the Legislative Committee and without their individual help the success of the year's work would not have been possible."

Respectfully submitted,

Edward Bowe, M. D.

Thomas P. Foley, M. D.

John R. Neal, M. D., *Chairman.*

*Legislative Committee.*

## REPORT OF MEDICO-LEGAL COMMITTEE

During the year from May 1st, 1931, to May 1st, 1932, the Committee reports that twenty-two cases have been disposed of—six cases have been tried in which we obtained five directed verdicts of "Not Guilty." Those cases consisted of one X-Ray burn, one operation for ovarian cyst, one sponge case, one removal of sub-maxillary tumor and one fracture case.

In the remaining case tried, it was charged that a sponge was left in the abdomen. The jury returned a verdict of \$6,500.00 while in a previous trial of this case a verdict had been returned for \$8,500.00. The case was then appealed to the Appellate Court and decision reversed. The Appellate Court's opinion is a very fine one from the standpoint of relieving the physician from legal responsibility for the counting of sponges. The sponge case in which we obtained a directed verdict has been appealed to the Appellate Court of the first district.

At the end of the year May 1st, 1931, we had 86 suits pending, while now we have 84 cases pending. Twenty-three claims for mal-practice were presented this year as compared with 29 last year. Fracture, X-Ray burns, and sponge cases still predominate in mal-practice suits.

It is with great regret and deep sorrow that we announce the death of Dr. George Weber of Peoria, Secretary of this committee for many years. Dr. Weber was a most efficient member and his untimely death is deeply regretted.

We have had a great many cases to try during the last six months which has incurred quite a little extra expense. Last year our expense from January 1st to May 1st, was \$2,646.10, while this year for the same period, the expense has been approximately \$3,000.00.

The committee feels that while the expenses seem great, we have been successful in our litigation. It is the policy of the Medico-Legal Committee to protect the profession as much as possible by not recommending the settlement of claims.

Respectfully submitted,

J. R. Ballinger, M. D., *Chairman.*

George Weber, M. D., *Secy., Deceased.*

R. O. Hawthorne, M. D.

Walter Wilhelmj, M. D.

Oscar Hawkison, M. D.

A. H. Geiger, M. D.

*Medico-Legal Committee.*

## REPORT OF EDUCATIONAL COMMITTEE

April 1, 1931—March 31, 1932

There has been increased activity in practically all departments of work of the Educational Committee. A review of these activities according to the major divisions follows:

### SPEAKER'S BUREAU

518 Physicians were scheduled by the Committee to present popular health talks before lay groups. While there has been a slight decline in the number of speakers scheduled for lay meetings, this may be attributed to the fact that many clubs devoted time to relief work of various kinds and dispensed with the usual program meetings as such.



These appointments represent college faculties, teachers' institutes (both county and state), women's clubs, men's organizations of all kinds, high school assemblies, nurses associations, Home Bureaus, Farmers' Institutes, public meetings, hospital staffs, Y. M. C. A.'s, Churches, Chambers of Commerce, factory groups. The Women's Auxiliary of the State Medical Society and the County Auxiliaries made calls on the Speaker's Bureau. That organization can promote the Speaker's Bureau by recommending that health talks be given by qualified speakers secured through recognized agencies is quite definite.

Approximately 183,000 people in Illinois heard health talks presented by members of the Illinois State Medical Society.

Speakers talked on such important and timely subjects as Animal Experimentation, The Sheppard-Towner Act, Health and Nutrition, Cancer, The White House Conference. Physicians talked about the importance of the pre-school examination and thus paved the way for the Summer Round-Up carried on by the Illinois Congress of Parents and Teachers. Such a movement which proposes to send the child to school physically fit, deserves the support of organized medicine. County medical societies sponsoring diphtheria immunization and smallpox vaccination campaigns asked for speakers.

*Cost of Medical Care, Medical Economics, Socialized Medicine*, were subjects of interest to some people and the Committee in its usual effort to keep in line with current problems, scheduled speakers to present these subjects before selected lay groups.

The Radiological Society supported the Educational Committee by taking care of eight science classes at the Carter H. Harrison Technical High School in Chicago during American Education Week. Illustrated talks were given on the story of X-Ray and Radium.

The Educational Committee assisted Marshall Field & Co. of Chicago in a successful series of talks for expectant and young mothers. Members of the Chicago Pediatric Society were among those who generously gave their time to address these meetings.

### RADIO

522 Radio talks were given during the year from two Chicago stations, WGN and WJJD. The Committee also supplied several stations with special radio talks for broadcast over local medical society supervision. Letters commenting on radio talks were received from all parts of the Middle West. Only occasionally did the managers announce that copies of the papers would be sent upon request. The Committee could not possibly meet the demand without entailing considerable expense. When such announcement was made to check up and find out if people were getting what they wanted, letters came from all over the country.

The public now feels privileged to occasionally ask that talks be given on specific subjects. When this was granted, a letter was sent to the person making the request, announcing that a talk on the subject would be given over a certain station at such a day and hour.

Copies of all radio talks are on file in the office of the Committee.

### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

The Committee assisted the following county medical societies by sending out notices of monthly or occasional meetings. Invitations were mailed with return postal cards not only to members of the host medical society but to all physicians in adjoining counties:

LaSalle County (monthly notices sent to 367 physicians).

Bureau.  
Franklin.  
Livingston.  
Perry.  
Randolph.

Notices were mimeographed for the monthly meetings of the Woman's Auxiliary to the Chicago Medical Society.

Schedules of the Summer Clinics of the Chicago Medical Society were enclosed with all Committee correspondence.

### PRESS SERVICE

During the year the Committee released to newspapers announcements of scientific meetings and clinics held by these county medical societies: Alexander, Bureau, Chicago Medical and its 15 branches, DeWitt, Franklin, Fulton, Henry, Iroquois, Jackson, Kane, La Salle, Livingston, Madison, McDonough, McLean, Mercer, Peoria City, Perry, Schuyler, Southern Illinois Medical Association, Tri-County Medical Society, Warren, Whiteside.

Educational articles on prevalent diseases were sent to newspapers in counties indicated by reports from the State Department of Public Health.

Appendicitis—All southern counties.

Summer Round-Up—All newspapers in cities or counties sponsoring campaigns.

Diphtheria, Smallpox—Clinton County.

Measles—Cass County.

Scarlet Fever—Macon County.

Scarlet Fever—Christian County.

Diphtheria—Ford County.

Infantile Paralysis—Henry County.

Chickenpox and Scarlet Fever—LaSalle County.

Special Health Articles—Will-Grundy County.

Typhoid Fever—St. Clair County.

Typhoid Fever—Montgomery County.

Measles—Champaign.

Measles—Peoria.

Whooping Cough—DuPage, Lake, Logan, Rock Island, McHenry.

Infantile Paralysis—Schuyler County (Editor of a newspaper in Schuyler county wrote, "Wish to thank you for your special letter in regard to infantile paralysis. As one or two cases are reported in Schuyler County, I am sure it will be of special interest to our readers.")

10,935 Articles were released to Illinois newspapers.

100 Health articles were written and approved by the Committee for release to over one hundred newspapers

using a daily or weekly health column and to *twenty-seven* newspapers using a monthly health column.

The Rock Island R. R. Magazine, going to hundreds of Rock Island employees over the country, carried each month a health column over the signature of the Education Committee, Illinois State Medical Society.

The Belleville Advocate published a daily health column on the editorial page, released through the Committee and appearing over the authority of the St. Clair County Medical Society.

The press service has been offered to the foreign newspapers of the state. Two Greek newspapers in Chicago will use a weekly health column with full credit to the Educational Committee, beginning May 1.

The Chicago Herald Examiner now publishes once a month, a Child Health Magazine Section in connection with the Sunday edition. The Educational Committee has supplied practically all of the fillers for this section and the main stories are the WJJD Young Mothers' Talks prepared by members of the Chicago Pediatric Society.

#### MISCELLANEOUS SERVICE

Special outlines and study material secured for Parent Teacher Associations.

Material on Cost of Medical Education and Income of Physicians prepared for special committee of the Illinois State Medical Society.

Secured revisions of the pre-natal and follow-up letters used by the State Department of Public Health, Chicago Pediatric Society and the Obstetricians of Chicago assisted with this work.

Committee approxed revisions for the Extension Division of the University of Illinois on examination blanks used by the 4-H Clubs of the Home Bureau organization.

State Medicine folders supplied to college debating teams.

History of nursing and medicine in Illinois supplied to nurses association.

Program material supplied to nurses association.

Program material supplied and outlines mimeographed for the Woman's Auxiliary.

Bureau of Investigation and Bureau of Legal Medicine of the American Medical Association supplied the Committee with information necessary to answer inquiries.

390 Package libraries sent to physicians.

Moving picture films secured for schools, clubs and factories.

Average of 1,100 clippings relating to physicians and medicine filed every month.

Special material compiled for the Department of Physical Welfare of the University of Illinois.

Periodic Health Examination blanks sent to club women.

Brief prepared of all articles relating to medical care and physicians, appearing in prominent lay journals during a twelve month period.

#### EXHIBITS

Community Demonstration Northwest Side, Chicago.

Annual Meeting Illinois Federation of Women's Clubs.

Annual Meeting Illinois Congress of Parents and Teachers.

White House Conference, Chicago.

Public Lectures, Marshall Field & Co.

Wabash Avenue Y. M. C. A.—Negro Health Week.

The American Medical Association very kindly through Dr. Thomas Hull, furnished material for four of these exhibits.

#### PUBLICITY GIVEN TO WORK OF THE COMMITTEE

Papers on work of the Committee presented at:

Annual Meeting, Illinois Tuberculosis Association.

Secretaries' Conference of Minnesota Medical Association.

Articles giving outline of activities appearing in:

American Journal of Public Health, October, 1931.

Illinois Health Messenger, August 15, 1931.

Information about conduct of Committee sent to:

American Library Association.

Florida Medical Society.

San Francisco Heart Association.

Lake County (Indiana) Medical Society.

New York State Tuberculosis Association.

Iowa Medical Association.

Minnesota State Medical Society.

#### SCIENTIFIC SERVICE PROGRAMS

158 Scientific papers were scheduled for county medical societies. (See report of Scientific Service Committee.)

Hundreds of physicians of Illinois have given their time, without remuneration, to help in this educational work sponsored by the State Medical Society. It has been through this splendid cooperation that the Committee is able to report the above activities.

Contacts with lay organizations have been developed and have been instrumental in promoting better understanding between the medical profession and the public. The Committee has worked very closely with the Illinois Federation of Women's Clubs, the Illinois Congress of Parents and Teachers. Other agencies advising with the Committee during the year have been the Illinois Society for the Prevention of Blindness, Illinois Society for Mental Hygiene, Extension Division of the University of Illinois, Crippled Children's Commission of the Elks, Institute for Juvenile Research, County Superintendents of Schools, County and District Teachers Associations, High School Principals, Farmers' Institutes, Home Bureau Units, Medical Schools, Men's Service Clubs, Nurses Associations, Churches, Universities, Normal Schools, Illinois Tuberculosis Association, Dental Societies, Civic Federation of Chicago, Youth Week Committee, Women's Auxiliaries to State and County Medical Societies, Athletic Directors of Y. M. C. A.'s, Hospitals, Young Mothers' Clubs, etc.

Every contact made by individual physicians enables the Committee to enlarge the scope of its work and develops better feeling between organized medicine and the laity. Medical men should guide and direct the



health activities of their local organizations and communities.

Respectfully submitted,  
William D. Chapman, M. D.  
James H. Hutton, M. D.  
Charles J. Whalen, M. D.  
R. R. Ferguson, M. D., *Chairman*.  
Jean McArthur, *Secretary*.

REPORT OF SCIENTIFIC SERVICE  
COMMITTEE

Members of the House of Delegates will note from this report that the county medical societies have used this service more in the past year than in any preceding one. It will also be noted that the use of it each year has been greater than the preceding one. A particularly gratifying part of the service is that the proportion of down-state men who take part in it has increased more in the past year than in any preceding one.

Officers of county medical societies, programs which deal with subjects that are likely to bring the doctor in a bad light before the public. This is particularly interesting as indicated by the number of meetings at which obstetrical questions have been discussed. More have been held in the past year than in any preceding one. Incidentally, the reduction of infant and maternal mortality has been greater in Illinois, where the Shepard-Towner Bribe was not accepted, than it has been in any state that so besmirched its record.

Members of the society have been very generous with their time in this service and for that reason the committee has been able to fill every request that has come to it. Some of these requests have allowed very little time and considerable inconvenience has been worked on the doctor who kept the appointment. This would be prevented if the committee were given a week or ten days, and preferably longer, in which to fill the appointment. A great many men have signified their willingness to serve and have not been called. This has been a matter of regret to the committee, but something it has not been able to prevent.

The deans of the various medical schools have been most cooperative in assisting in the arrangement of programs and in some instances have arranged them entirely and supplied the speakers to take care of them.

The Educational Committee has assisted county secretaries in sending out notices of their meetings to doctors in that territory and in releasing announcements to the daily press. It appears that this service has helped to increase the attendance of some societies; in some instances as much as three or four hundred per cent.

The statistical report of the committees' work is appended.

	Speakers Scheduled	Chicago Speakers	Downstate Speakers	Counties Served
1928-29 .....	58	43	15	29
1929-30 .....	98	77	21	42
1930-31 .....	117	91	26	34
1931-32 .....	158	107	51	46

The calls for scientific programs in 1931-32 may be classified according to subjects as follows:

Neurology .....	7	Miscellaneous .....	7
Obstetrics & Gynecology...	10	Eye, Ear, Nose & Throat.	1
Surgery .....	11	Allergy .....	5
Pediatrics .....	6	Gastro-Intestinal .....	6
Economics .....	10	Gall Bladder .....	5
Endocrinology .....	5	Genito-Urinary & Protologic	5
Orthopedics .....	6	Heart .....	12
Tuberculosis .....	8	Cancer .....	3
Medicine .....	31	Dermatology .....	6
X-Ray and Radium.....	6		—
Ethics, Organization .....	8		158

County	Speaker	Subject
Rock Island	Sydney Kuh	"Neurology."
Will-Grundy	A. I. Kendall	"Sanitary Work in Panama."
Sangamon	Edward Lyman Cornell	"Forceps Delivery" by DeLee.
Coles-Cumberland	Clement L. Martin	"Proctologic Problems of General Interest."
Stephenson	Harold M. Camp	"Medical Ethics and Clinics."
Warren	Harold M. Camp	"Some Interesting Problems in Economics and the Relationship between the Medical and Dental Professions."
Fulton	Arthur H. Parmelee	"Some Observations on Breast Feeding."
Fulton	William H. Holmes	
LaSalle	Maurice L. Blatt	"Neurological Disturbances in Childhood."
LaSalle	Don C. Sutton	"Heart Disease."
LaSalle	Francis J. Gerty	"Emotion Changes as Symptom of Mental Disease."
LaSalle	Sumner L. Koch	"Infections of the Hand."
Douglas	Frederick B. Balmer	"Medical Economics."
Schuyler	George deTarnowsky	
Pike	R. O. Stites	"Undulant Fever."
Warren	Philip Kreuscher	"Crippled Children's Clinic."
Decatur	Mr. W. K. Lasher	"Medical Economics."
Will-Grundy	Allen B. Kanavel	"Infections of the Hand"—Film.
Paris Hospital	Robert Keeton	
Sangamon	Frederick B. Moorehead	"Problems of Oral and Plastic Surgery."
Rock Island	Cary Culbertson	"Gynecological Subject."
Union	E. J. Weber	
Will-Grundy	Frank F. Maple	"Obstetrics."
Jackson	Jean McArthur	"Educational Work in Illinois."
Jackson	James T. Gregory	"Acute Appendicitis."
Alexander	Robert S. Berghoff	"Syphilis of the Heart."
McHenry	Edwin W. Hirsch	"Treatment of Chronic Gonorrhea."
Alexander	J. E. Kelley	"Some Forgotten Points in the Technique of Operation for Inguinal Hernia."
Coles-Cumberland	Hugo W. Traub	"Immunization."
Iroquois	Dudley T. Dawson	
Perry	N. C. Iknayan	"Renal Insufficiency."
Will-Grundy	Richard H. Jaffe	"Pathology of Pulmonary T. B."

- Monmouth—Charles P. Blair—"Injuries to the Spine."  
 Winnebago—Andy Hall—  
 Peoria City—Francis E. Senear—"Modern Conceptions Concerning the Treatment of Syphilis."  
 Will-Grundy—Charles M. McKenna—"Renal Tuberculosis."  
 Fulton—A. C. Ivy—"Studies on the Etiology of Gall Stones."  
 Iowa Illinois Central District—George deTarnowsky—"Treatment of Low Back Pain."  
 Paris Hospital Staff—Robert S. Berkhoff—"Syphilis of the Heart."  
 Knox—William D. Chapman—"Medical Organization."  
 Rock Island—Samuel M. Feinberg—  
 Will-Grundy—Clarence L. Wheaton—"Lobar Pneumonia."  
 Jackson—Herman H. Cole—"Heart."  
 Tri-County—George H. Marquardt—"Vascular Pains and Vascular Edema of the Legs—Their Diagnosis and Treatment."  
 Tri-County—Harold O. Jones—"Gynecology."  
 Tri-County—Lowell D. Snorf—"Treatment of Peptic Ulcer and Its Complications."  
 Will-Grundy—Channing W. Barrett—"Diagnosis and Treatment of Extra-Uterine Pregnancy."  
 Pike—G. W. Staben—"Advantage of Early Treatment in Certain Congenital Deformities."  
 Pike—Dudley T. Dawson—"The Responsibility of the Psychiatrist in His Community."  
 LaSalle—James H. Hutton—"Recent Advances in Endocrinology."  
 LaSalle—Jean McArthur—"A Medical Society's Responsibility for Health Education."  
 LaSalle—Mr. W. K. Lasher—"The Business Side of Medicine."  
 Will-Grundy—A. James Larkin—"Radium in General Practice."  
 Macomb—Harold M. Camp—"Some Interesting Problems in Economics and Cooperation Between the Medical and Dental Professions."  
 Schuyler—Harold M. Camp—  
 Schuyler—William D. Chapman—"Recitation in History."  
 Decatur—R. K. Packard—"Medical Economics."  
 Will-Grundy—Samuel M. Feinberg—"Allergy, Asthma and Hay Fever."  
 Southern Illinois Medical Association—Charles A. Elliott—"The Management of Edema."  
 Southern Illinois Medical Association—J. G. Carr—"Biliary Tract Disease."  
 Southern Illinois—A. A. Goldsmith—"Gastric and Duodenal Ulcer."  
 Southern Illinois—E. P. Sloan—"Goiter."  
 Knox—Aaron Arkin—"Pulmonary Diseases and Their Differential Diagnosis."  
 Bureau—Edward A. Oliver—"Practical Points in Dermatology."  
 Bureau—Leon Unger—"Allergy."  
 Rock Island—Don C. Sutton—"Treatment of Pneumonia."  
 Ogle—R. T. Pettit—"Cancer."  
 Ogle—R. W. Dunham—"Tuberculosis."  
 Will-Grundy—Edward A. Oliver—"Skin Diseases."  
 McHenry—Walter B. Metcalf—"Tuberculosis Clinic."  
 Jackson—Frank Deneer—"Pneumonia."  
 LaSalle—Robert I. Barickman—"Persistent Thymus."  
 LaSalle—John A. Wolfer—"Common Dust Diseases."  
 LaSalle—William H. Holmes—"The Nature and Treatment of Bright's Disease."  
 Will-Grundy—Gilbert H. Marquardt—"Diagnosis and Treatment of Circulatory Disturbances and Edema of the Extremities."  
 DeWitt—Charles Spencer Williamson—"Pneumonia."  
 Kane—Marshall Davison—"Surgery"  
 Perry—James H. Hutton—"Recent Advances in Endocrinology."  
 Perry—Frank F. Maple—"Abortion and its Treatment."  
 Will-Grundy—Frank E. Simpson—"Radium Treatment in Malignancy."  
 Jackson—M. F. Arbuckle—"Sinus Disease."  
 Will-Grundy—Geza deTakats—"Treatment of Varicose Veins."  
 LaSalle—Emil Hauser—"Low Back Pain."  
 LaSalle—Archibald Hoyne—"Poliomyelitis."  
 LaSalle—R. T. Pettit—"Recent Advances in Deep X-Ray Therapy."  
 Rock Island—Maximilian Kern—"Non Surgical Types of Goiter."  
 Will-Grundy—Hugo R. Rony—"Obesity and Leanness."  
 Paris Hospital—Lowell D. Snorf—"The Stomach."  
 Paris Hospital—David S. Hillis—"The Management of the Labor Case."  
 Will-Grundy—Edward J. Stieglitz—"Certain Aspects of Arterial Hypertension."  
 Sherman Hospital, Elgin—J. R. Ballinger—"Medico-Legal Aspects of Medicine."  
 Will-Grundy—Walter Fischer—"Foot Problems."  
 Fulton, Schuyler, McDonough Counties—Sidney H. Easton—"Orthopedic Clinic Talk."  
 Fulton, Schuyler, McDonough Counties—Sidney H. Nadler—"Diabetes."  
 Will-Grundy—Lee' O. Frech—"Medical Economics."  
 Monmouth Physicians Club—Harold Swanberg—"Economic Conditions in Europe and Especially in Vienna."  
 Perry—Thomas B. Kelly—"Infections of the Gall Bladder."  
 Perry—J. R. Ballinger—"Malpractice."  
 Aurora—Edward A. Oliver—"Practical Points in Dermatology."  
 Paris Hospital—James T. Case—  
 Rock Island—James T. Gregory—  
 LaSalle—Robert Berghoff—"Syphilis of the Heart."  
 LaSalle—Arno B. Luckhardt—"Ethylene Anesthesia."  
 "The Importance of Animal Experimentation in the Advancement of Medical Knowledge."  
 LaSalle—D. Raymond Dwyer—"Hyperthyroidism."  
 Will-Grundy—Edmund Andrews—  
 Whiteside—M. Herbert Barker—"Nephritis."  
 Whiteside—Don C. Sutton—"General Survey of Heart Disease."

Norwegian American Hospital—J. R. Ballinger—"Malpractice."  
 Will-Grundy—Charles S. Williamson—"The Management of The Commoner Heart Conditions."  
 Kane—John A. Wolfer—"Diseases of the Common Duct".  
 Warren—Hermon H. Cole—"Surgical Treatment of Tuberculosis."  
 Warren—James H. Hutton—"Recent Advances in Endocrinology."  
 Jackson—John R. Caulk—"Genito-Urinary subject."  
 Randolph—Charles S. Skaggs—"Hypertension."  
 Randolph—H. A. Cables—"Broncho Pneumonia."  
 Fulton—Harold M. Camp—"Medical Economics."  
 Fulton—Charles P. Blair—"Spinal Injuries."  
 Iroquois—Leon Unger—"Recent Advances in Treatment of Asthma and Hay Fever."  
 Will-Grundy—J. R. Ballinger—"Malpractice."  
 Will-Grundy—Francis E. Senear—"The Present Status of Anti-Luetic Treatment."  
 Aurora—Lowell D. Snorf—"The Complications of Peptic Ulcer."  
 Perry—W. L. Bowen—"Surgical Problems in Disease of the Thyroid."  
 Perry—H. I. Stevens—"Fluid Balance and Blood Transfusions."  
 Paris Hospital—Charles F. Geschickter (Johns Hopkins, Baltimore)—"Newer Aspects of the Cancer Problem."  
 Rock Island—Clement L. Martin—  
 Will-Grundy—Garwood C. Richardson—"Obstetrics."  
 Will-Grundy—Emil Z. Levitin—"Neurology."  
 LaSalle—P. K. Brown—"Treatment of Puerperal Infection."  
 LaSalle—I. Y. Olch—"Hyper-Parathyroidism and Hyper-Insulinism and Their Importance in Surgery."  
 LaSalle—E. F. Cox—"An Unusual Case of Vesicle Calculus."  
 Will-Grundy—Clifford G. Grulee—"Pneumonia in Infants and Children."  
 Franklin—Duff S. Allen—"Pulmonary Tuberculosis—From the Surgical Point of View."  
 Franklin—Alfred Goldman—"Pulmonary Tuberculosis—Medical Phases of the Question."  
 Will-Grundy—Frank M. Phifer—"Some Phases of the Prostatic Problem."  
 Fulton—Don Deal—"Choice of Anesthesia."  
 Fulton—Hermon H. Cole—"Empyema and Lung Abscess."  
 Iroquois—J. D. Willems—"Early and Late Treatment of Deep Burns."  
 Madison—Charles D. Center—"The Child."  
 Julia Rackley Perry Memorial Hospital, Princeton—Frank Deneen—  
 Will-Grundy—M. Herbert Barker—"Nephritis."  
 Kane—Clifford U. Collins—"Cancer."  
 Perry—J. E. Glenn—"Diagnosis and Treatment of Kidney Infection."  
 Perry—M. L. Klinefelter—"Fractures."  
 Elkhart, Indiana—James T. Case—  
 Sangamon—Harry M. Richter—

Paris Hospital—Fred H. Albee—"Bacteriophage in Wound Treatment."  
 McLean—Fred H. Albee—"Bacteriophage in Wound Treatment."  
 Bureau—G. K. Fenn—"Treatment of Heart Failure."  
 Bureau—Willard Van Hazel—"The Surgical Treatment of Pulmonary Tuberculosis."  
 Rock Island—Morris Fishbein—"The Future of Medical Practice."  
 Will-Grundy—Robert W. Keeton—  
 Kankakee—Samuel M. Feinberg—"Allergy of the Respiratory Tract."  
 Union—H. N. Rafferty—"Acute Suppurative Osteomyelitis—A Plea for Its Early Recognition."  
 Sherman Hospital—J. F. Jaros—"Endocrine Therapy."  
 Knox—Charles S. Williamson—"Pericarditis—The Cardiac Condition Most Frequently Overlooked."  
 Livingston—David S. Hillis—"Obstetrics."  
 Will-Grundy—James T. Case—  
 Will-Grundy—Charles F. Read—"What Illinois is Doing for the Mentally Handicapped."

We feel that the Illinois State Medical Society should be proud of its work in public health and preventive medicine.

Respectfully submitted,

James H. Hutton, M. D.,

Chairman.

#### REPORT OF VETERANS' SERVICE COMMITTEE

At the meeting of the Council in East St. Louis in January, 1931, a resolution was adopted having for its object a closer contact of the Illinois State Medical Society and The American Legion. For that purpose a Council Committee was authorized to determine ways and means of fulfilling this purpose.

The first step was the organization of a Contact Committee with The American Legion. This Committee met with the State Medical Officer of The American Legion and representatives of the Medical Commission of The Legion. The Medical Commission was the organization in The Legion of the Post Medical Officers, the County Medical Officers, the District Medical Officers, and the Division Medical Officers.

It was felt that the principal way of bringing about the desired amicable relations could best be done on the basis of educating both the members of The Legion and the members of the Illinois State Medical Society. With this end in view the Secretary of the Illinois State Medical Society wrote to the officers of each of the county component societies asking them to appoint a representative from the county society to the Contact Committee. Up to the present time fifty of the county societies have appointed representatives.

At the March (1932) meeting of the State Society Council following the report of the Chairman of the Committee that great interest had been aroused in the question of veterans' legislation it was voted to broaden the Committee to include all ex-servicemen's organizations. For this reason the name of the Committee was changed to the Veterans' Service Committee so that



the desired contact could be changed to include the Veterans of Foreign Wars, the Disabled Veterans' Association, and the Spanish War Veterans' Association. It is hoped by this change that the friendly relation established with The American Legion may be extended to these organizations.

This Committee has had two articles appearing in the ILLINOIS MEDICAL JOURNAL. The first discussed at some length the Resolution adopted by the American Medical Association at the (1931) Philadelphia Session which has since been known as the "Shoulders' Resolution." The second communication of the Committee appeared in the April (1932) issue of the ILLINOIS MEDICAL JOURNAL and had for its purpose the direction of the attention of the members of the Illinois State Medical Society to the unnecessary expenditure of public funds in the expansion of government hospitals.

Reprints of this article have been mailed to all members of the Veterans' Service Committee representing the component societies. The amendment of ???

The danger to a committee of this kind is that in the maze of material it studies, that the practical side of interest to the average physician may be slighted. Your Committee is making every effort to have a report of practical value that will be of use and not the collection of theoretical information that beyond pleasant reading leaves the profession no better for its pronouncements.

Respectfully submitted,  
Thomas P. Foley, M. D.,  
*Chairman.*

Dr. Pfeifferberger: I move these reports be accepted. (Motion seconded by Dr. W. S. Bougher, Chicago, and carried.)

The President: We will now have the report of the Editor.

#### REPORT OF THE EDITOR

Since "books must follow sciences, and not sciences books," surely the most satisfactory angle to this report of the editor of the ILLINOIS MEDICAL JOURNAL is that during the immediate past fiscal year the JOURNAL has broken its own high record for both large percentage of scientific content and comprehensive contact with current events in the research and development of medical progress.

These contacts run the gamut from the acceptance of new theories of diagnosis, treatments and cures; of actual discoveries and discards in the teaching and practice of medicine, to a meticulous keeping in step with that ubiquitously discussed element in medicine today—medical economics. Without conceit the doctors of Illinois who are the owners and sponsors of the ILLINOIS MEDICAL JOURNAL may take pride in the knowledge that this mature, deliberate journal carries on the tradition of its founding which was that such a journal was needed as a clearing house for medical findings and a dispensary for all medical news—whether of therapy, surgery, tendencies or eminent disciples.

Every country in the civilized world contributes to the pages of the ILLINOIS MEDICAL JOURNAL. Because of such cooperation from the fraternity at large as well as the individual generosity of eminent men and women in the profession, the pages of this periodical offer no mean substitute for an international though embryo clinic. Open to expressions of personal opinion on any subject from ethical medical men, the claim is not fallacious that here is a forum extraordinary for the profession, by the profession and of the profession.

One excellent feature of the ILLINOIS MEDICAL JOURNAL—in the minds of readers and contributors—is the large number of illustrations. Especially is this valuable where new methods of treatment and new instruments for treatment are used in new processes just being brought to proof or in the revision of traditional methods.

Leaving the scientific for the utilitarian let it be noted that:

As this period of unprecedented financial and economic disaster reaches its peak with the close of the fiscal year of the Illinois State Medical Society, it is with great comfort that the Editor of the ILLINOIS MEDICAL JOURNAL reports that this year's income from that periodical is comparatively little less than that of preceding years and that the prestige of the JOURNAL continues at the maximum.

Considering that during the months of which we speak, some of the oldest and ablest of trade and of lay periodicals have been compelled to close down forever, or else so to merge themselves and their policies with other journals, in this mere act of survival without bankruptcy, the ILLINOIS MEDICAL JOURNAL may well claim to possess a profit as well as to rule as a power, and to serve the mother science with all due loyalty.

National advertising—the spokesman-at-large for the manufacturer—has grown dumb with the closing down or the suspension of one after another of great industrial plants.

In spite of all this the ILLINOIS MEDICAL JOURNAL again makes a record commercial as well as scientific. This exceptionally influential professional journal enjoys still a large share of that confidence maintained in the hearts of the discouraged business man in this crisis of unwonted acuteness.

Only by steadfast courage has this record been upheld—courage to refuse to "say die"; courage to insist that an invalidated economic system should be nursed along, dosed and prescribed for with the same patience and skill and optimism as that with which thousands of physicians the world over pull sick and ailing humanity back to life, or in those cases where cure is impossible make palliation the better part of despair, and also take time out to write to the ILLINOIS MEDICAL JOURNAL their latest improvements in practice.

For this record the Editor does not assume personal credit but rather shares it. Not until the Judgment Day—if even then—will the story be told as to how physicians, surgeons, nurses and their allied crafts and professions have carried on in the face of this mighty



financial debacle. Many a man in the profession at the age at which he had hoped to be able to retire sees his total savings swept away in the failure of banks, slump in investments, or shattering of the stock market that has turned princes into paupers with—a twist of the wrist. But the doctors carry on. All over the world men of medicine have kept right on going. So if the ILLINOIS MEDICAL JOURNAL stands today practically at par surely it is only meet that its editor should state that this gratifying condition but reflects the labor and the valor and the faith of the peerless profession for which it is an organ. The ILLINOIS MEDICAL JOURNAL could not have done otherwise and lived up to its name and its tradition. Nor is it necessary to remind you doctors that such sustainment of tradition and heritage has not been accomplished by day dreaming, by dawdling or by procrastination. As a matter of fact the entire staff of the ILLINOIS MEDICAL JOURNAL has worked as never before to keep the home fires burning.

The general outlook is improved. With the presidential election out of the way, and probably with the country returning generally to saner, safer modes of living, a bountiful harvest is to be hoped for.

But—and let this alternative be emphasized—remember that this country faces now one of the most crucial elections in the history of the United States since the Liberty Bell first pealed forth in Pennsylvania. This harbinger of freedom has become pathetically cracked and damaged since that early day. It begins to look as if the gospels of freedom for which it rung were in much the same sad condition. Right at this moment especially and with the same vehemence as it stated monthly in the volumes of the ILLINOIS MEDICAL JOURNAL let your editor remark that this is the one time above all others when physicians must manifest themselves and their organized power at the polls. Burdened under such taxation as was never meted out to a civilized nation—let alone a democracy—as a people we stand to fall unless we unite to rise. And with this cataclysm will come the destruction of medical science and all that this signifies.

The monstrosity of the sins against medical economics and against the individual members of the profession gain momentum at an alarming rate. Lay dictation, lay endowment, lay administration, stretches forth a long arm as never before. While it is the purpose of the ILLINOIS MEDICAL JOURNAL to stand first as a courier of scientific information and as a relayer of what is newest amongst the tried and true innovations of the practice of medicine, this periodical must if it would not betray its trust make certain to keep the profession informed as to the menaces against its strength, and progress and the public welfare.

Bureaucratic control at Washington has become so top-heavy that even lay journals are beginning to demand curtailment. The extent of our law-riddenness, of our over-centralization, of the burden of our interfering theorists who assume a knowledge when they have it not to the everlasting impairment of established institutions is evidencing itself in the realms of com-

merce. Business is waking up to bureaucracy and what that means.

And the protest against this debauchery of tradition, custom and right is making its way into the columns of the lay press. Not for the rights of the medical profession. That is almost too much for us to expect but it is the sign that points to us the fallacy of accepting such intrusion and invasion in our own sphere without lordly protest, and it is an act of demurrer that we the medical profession can count upon for utterance only and for dissemination through the personnel, and private mouthpieces of medicine and medical men.

Even if other avenues of protest and expression were opened to us more widely than is daily made possible through the exertions of various educational committees and branches of organized medicine it will always remain necessary for the columns of every ethical, medically owned journal to devote a certain portion of its space, a certain amount of its power to elucidating that neglected angle of medicine—*medical economics*. It is a satisfaction to know that in this line the ILLINOIS MEDICAL JOURNAL stands as a pioneer and continues as an elder in the councils of authority.

If it be asked what especial items in the bill of particulars of bureaucratically begotten crimes against the medical profession call for the most concentrated attack it might be connoted briefly that these stand out as

1. Increasing trend towards socialization of medicine and installation of greater privately endowed methods to wrest medical practice from the control of medicine and put it into the hands of laymen, an evil especially manifest in the growth of part pay clinics; of corporations and of universities, of hospitals and of other institutions entering boldly into the practice of medicine; all of which usurp the rights of scientific medicine and of the men who are its practitioners;

2. Continued augmentation of bureaucratic control and over-centralization of power in Washington; and alarming accretion of handicapping, ignorantly and mistakenly inspired legislation by which such an exact and personal science as medicine must attempt to function under lay dictation.

3. Lethargy of a portion of the medical profession itself as to the strength of these menaces; misguided ideas as to what the medical profession needs to do for its own salvation; lack of insistence for a revival and reinstatement of the general practitioner and old-fashioned "family doctor" and above all an almost absolute and complete failure of a realization that medical organization, and medical interest in national politics must become as integral a part of medical welfare and the future of medicine as that of medical economics has proven itself to be.

Commercial, statutory and political interests have for too long a time made of the medical and allied professions a sadly suffering cat paw. The lay press fights for such interests. The medical press must fight for the welfare of medicine and, per se, for the stability of civilization.

In concluding, with the heartiest appreciation of the substantial support give the ILLINOIS MEDICAL JOURNAL

by doctors not only in Illinois who own the magazine but by the fraternity throughout the United States.

Respectfully submitted,

Chas. J. Whalen, M. D.,  
Editor.

## REPORT OF THE HISTORIAN

To Members of the House of Delegates:

It is with deep and sincere sorrow that record is made of the death on March twenty-first last of Dr. Lucius Zeuch whose contributions to the history of medicine in Illinois have been not only noteworthy, but of incalculable value. I was privileged to know Dr. Zeuch rather well and he typified in his many attributes the fine qualities of a true physician, and eager searcher after truth and one whose devotion to his fellow man endeared him to thousands of his patients and friends. In the passing of Lucius Zeuch Illinois medicine has suffered a great loss. His talents were many; he was a noble character.

Some response has been had from the suggestion made in 1931 report, namely, that county secretaries use the utmost care in discovering and preserving minute books of society meetings, programs, organization data, together with biographical sketches of Illinois physicians. The desirability of this function should be again stressed with the added suggestion that instruments and medical equipment of all sorts be collected and preserved.

To the great credit of Rock Island County Medical Society, your historian is pleased to report that the last resting place of Dr. John Gale and of Dr. Richard Coleman pioneer army surgeons who died at Fort Armstrong (1830-1832), has been definitely located and marked by a bronze tablet attached to a large granite boulder. The ceremony of unveiling of the tablet was held on October 20, 1931, with the following program:

### PROGRAM AT MARKER

5:00 P. M.

Dr. Hugh A. Beam, Presiding

Invocation.....Rev. Wm. R. Hodgson, Moline

Explanation of the Occasion.....Dr. Stuart W. Adler

Unveiling of the Tablet.....Dr. W. H. Myers

President, Rock Island County Medical Society.

Acceptance by Custodian.....Col. D. M. King

Commanding Officer, Rock Island Arsenal.

Singing—"America."

Taps.

Benediction.

### EVENING PROGRAM

Fort Armstrong Hotel

Dinner 7:00 P. M.

Dr. W. H. Myers, Presiding

Dr. Joseph DeSilva, Toastmaster

Introductory Remarks.....Dr. W. H. Myers

Music.....Foster String Trio

Address—"U. S. Army Surgeons at Fort Armstrong".....Mr. John H. Hauberg

Vice President, Illinois Historical Society.

Vocal Solo.....Dr. F. E. Bollaert

Address—"Drs. John Gale and Richard Coleman"...

.....Dr. Irving S. Cutter  
Singing—"Star Spangled Banner."

In connection with this memorial mention should be made of the cooperation of Colonel D. M. King, Commandant of the Rock Island Arsenal, and Mr. John H. Hauberg, Vice President of the Illinois Historical Society. Due recognition of this marker has been made by the Historical Society of the State of Illinois and its location has been noted by the Secretary of State.

Proceedings are under way for the erection of a suitable marker on the site of the inauguration of formal medical instruction within the boundaries of what is now the State of Illinois at St. Charles. A local committee of St. Charles' physicians and citizens has been formed and it is expected that this movement will come to fruition in the next few months.

Numerous papers have been presented before the Society of Medical History of Chicago, several branches of the Chicago Medical Society, and several district societies throughout the state dealing with medical-historical topics. In addition numerous studies are under way dealing with certain phases of early medical history in Illinois. Among these may be mentioned the early history of Cook County Hospital which Dr. Robert B. Preble is preparing. His work has been greatly aided by numerous photographs taken by Dr. C. H. Earle of Des Plaines, Illinois, during his interne period in Cook County Hospital (1887-1889). Another paper in preparation is the study of the medical members of the Reno family of Carrollton, Illinois. It will be recalled that Marcus A. Reno, who miraculously preserved his detachment at the battle of the Little Big Horn, was appointed to West Point by Stephen A. Douglas. Major Reno's younger brother studied medicine in St. Louis and was a practicing physician for many years in Illinois. A new and illuminating study is also under way relative to the role of Dr. John Evans in the early political history of Illinois. It will be recalled that John Evans was editor of the first medical journal published within the state, was the founder of Evanston, Illinois, later to become territorial governor of Colorado, under the appointment of Abraham Lincoln. Dr. Evans never returned to Illinois, but made Colorado his home for the remainder of his life. Mt. Evans (14,330 feet altitude), one of the great peaks of the Rockies within the corporate limits of the city of Denver, is named in his honor.

The Library of the Chicago Society of Medical History has been turned over to the Chicago Historical Society under a satisfactory agreement. This will be housed in the new building of the Chicago Historical Society in Lincoln Park, Chicago, and will be readily accessible to physicians and students. This collection is largely the work of Dr. George H. Weaver and great credit must be accorded him for his indefatigable labors in gathering an unusually complete set of early Illinois medical journals, pamphlets, theses, biographical sketches, etc. Dr. Weaver will be recalled as the author of the admirable monograph on "Beginnings of Medical Education in and around Chicago."

Your historian begs leave to suggest that at least



one meeting each year in each county society be devoted to the history of medicine in and around the county in question. The papers read perhaps could be centered around two or three outstanding pioneer physicians or men who have contributed to the up-building of medical ideals and the advancement of scientific knowledge. If this suggestion is adopted considerable new material will be discovered and added to the valuable collections now in hand.

In conclusion I desire to express my sincere appreciation to the officers of the Illinois State Medical Society and to the numerous physicians throughout the state who have responded so graciously to numerous requests for historical data.

Respectfully submitted,

Irving S. Cutter, M. D.,  
*Historian.*

Dr. Pfeifferberger: I move the adoption of the reports of the Editor and the Historian. (Motion seconded by Dr. E. B. Fowler, Chicago, and carried.)

The President: The next order of business is the appointment of a Resolutions Committee. On this Committee I will appoint Drs. E. P. Sloan, Bloomington, P. H. Kreuscher, Chicago, and Mather Pfeifferberger, Alton.

The introduction of resolutions is now in order.

Dr. E. B. Fowler, Chicago: I wish to present the following resolution:

#### 1. *Lien Bill.*

The Lien Bill is one of paramount importance to all the members of the medical profession as well as to the hospitals and nurses.

The doctors, hospitals and nurses have been cheated out of and are being cheated out of thousands of dollars yearly by unscrupulous people and corporations.

In the fall of 1931 the Central State Society and the Chicago Society of Industrial Medicine and Surgery proposed the drawing up of a Lien Bill. Legal assistance was finally secured through the Chicago Medical Society.

The following bill is the result. This bill was called to the attention of the house of delegates of East St. Louis and was endorsed by them.

The Industrial Society bore the expense of having this bill presented through Senator Woods. Due to the lateness of the season, it did not reach the House.

I have had the assurance of Mr. Soderstrom of the House that labor would give its support to this bill and we are of the opinion that if the House of Delegates and the Illinois State Med-

ical Society give this bill its proper support that at the next meeting of the State Legislature we will have this bill put through, which is considered real constructive legislative work.

W. C. Nordholz, M. D.

Secretary-Treasurer, Central State Society  
of Industrial Medicine and Surgery.

#### A BILL

For an act to provide for liens in favor of proprietors of hospitals, and for physicians, surgeons and nurses supplying care, maintenance or treatment to these persons injured on any sum awarded to or received by the injured person, on any right of action, claim, demand, damages, insurance, compensation, benefit aid or judgment therefor, and on the proceeds thereof, whether received by settlement or litigation, except proceeds under the act approved June 10, 1911, entitled "An act to promote the general welfare of the people of this state by providing compensation for accidental injuries or death suffered in the course of employment within this state," etc., and to provide notice of such liens and a method for filing them as a public record, and to provide for establishing the rights of claimants of such liens.

*Be it enacted* by the People of the State of Illinois, represented in the General Assembly:

Section 1.—Every person, firm, association or corporation maintaining a hospital in this state, and every physician, surgeon, or nurse performing professional services in treating human ailments by authority of the Medical Practice Act of this state, or of the Illinois Nursing Act, in case of injury to any person, if such person so injured shall claim damages on account of such injury, or shall claim any other compensation, insurance, or benefit aid therefor, shall have a lien on such damages, insurance, compensation or benefit aid and on any sum awarded or to be awarded to, or received or to be received by, such injured person, and on any right of action, claim, or demand therefor, whether awarded, claimed, demanded, received, or paid by virtue of a settlement, or judgment in compensation for such injury, or insurance policy, or benefit aid, received or recovered on account of such injury, and shall have a lien on any judgment of record in any court for such damages, insurance, compensation, or benefit aid, for reasonable compensation for such care, maintenance, or treatment as shall be supplied to such injured person by such hospital, physician, surgeon or nurse; but no such lien shall attach in case of compensation for an injury sought or collected under an act approved June 10, 1911, entitled "An act to promote the general welfare of the people of this state by providing compensation for accidental injuries or death suffered in the course of employment within the state," etc.; and any such lien shall not be valid unless notice thereof in writing, containing the name and address of the person injured, the approximate date and place of the injury, the name and address of the proprietor of the hospital, the location of such hospital, or the



name and address of such physician, surgeon, or nurse, the amount claimed for care, maintenance, or services supplied, and, if known, the name of the person, firm, association or corporation deemed or alleged to be liable for damages or other compensation for such injury, shall be given to the person, firm, association or corporation deemed or alleged to be liable for such injury, or filed by the claimant in the office of the recorder of deeds of the county in which such hospital is located, or such physician, surgeon or nurse rendered such care, maintenance or services, in either case within thirty days after such care, maintenance or services were completely supplied.

Section 2.—The recorder of deeds of each county shall maintain at the expense of the county a file labeled "Medical and hospital liens" and an index thereof labeled "Medical and hospital lien index," and shall file such notices of liens and index them respectively therein, both of which shall be open to public inspection.

Section 3.—The claimant of any lien hereunder may enforce the same by proper action in any court of competent jurisdiction. Whenever any suit so brought shall be determined in favor of the claimant, the court shall allow a reasonable attorney's fee to be taxed as part of the costs.

*Be it resolved*, that the House of Delegates of the Illinois State Medical Society favor the provisions embodied in the Lien Bill, and

*Be it further resolved*, that the Council be requested to consider the advisability of asking the Legislative Committee or a special committee appointed by the Council to confer with the State Hospital Societies and the State Nurses' Societies and to proffer them the assistance of the Illinois State Medical Society in securing the presentation and passage of the Lien Bill or a similar bill at the next session of the Illinois State Legislature.

Dr. G. H. Mundt, Chicago: I wish to present the following resolution from the Eye, Ear, Nose and Throat Section:

2. *A Bill for an Act to Amend Sections 3 and 8 of "An Act for the Prevention of Blindness from Ophthalmia Neonatorum."*

*Be it resolved*, by the House of Delegates of the Illinois State Medical Society that the Council and the State Legislative Committee be requested to consider the advisability of securing the introduction of a bill similar to the following at the next session of the General Assembly of the State of Illinois.

A bill for an act to amend Sections 3 and 8 of "An Act for the prevention of blindness from ophthalmia neonatorum; defining ophthalmia neonatorum; designating certain powers and duties, and otherwise providing for the enforcement of this act," approved June 24, 1915.

*Be it enacted by the People of the State of Illinois, represented in the General Assembly:*

Section 1.—Sections 3 and 8 of "An Act for the prevention of blindness from ophthalmia neonatorum; defining ophthalmia neonatorum; designating certain powers and duties, and otherwise providing for the enforcement of this act," approved June 24, 1915, are amended to read as follows:

Sec. 3.—It is the duty of all maternity homes and any and all hospitals or places where women resort for purposes of childbirth, to post and keep posted in conspicuous places in their institution, copies of this act, and to instruct persons professionally employed in such homes, hospitals and places, regarding their duties under this act, to maintain such records of cases of ophthalmia neonatorum in the manner and form prescribed by the Department of Public Health.

*It shall be the duty of any physician, midwife or nurse who attends or assists at the birth of a child to instill or have instilled in each eye of the new born baby, as soon as possible and not later than one hour after birth a one per cent. (1%) solution of silver nitrate or some other equally effective prophylactic for the prevention of ophthalmia neonatorum approved by the State Department of Public Health.*

Sec. 8.—Any person violating any of the provisions of this act shall be guilty of a misdemeanor, and shall, upon conviction thereof, be fined not less than fifty (\$50) dollars, nor more than one hundred (\$100) dollars, or be imprisoned in the county jail not to exceed six months, or both, in the discretion of the court.

Dr. T. P. Foley, Chicago: I wish to present the following resolution:

3. *Veterans' Service Committee.*

The Illinois State Medical Society authorized the formation of the Veterans' Service Committee to establish friendly relations with the major veterans' organizations. The purpose of these relations being the coalescing of the mutual interests of the medical profession and the veterans' organizations in the complete rehabilitation, as far as possible, of the disabled ex-service-men.

The interest of all alert taxpayers in the expenditure of public funds by the Federal Government justifies the interest of organized medicine in any government plan necessitating expansion in the building and maintaining of government hospital facilities.

It is the belief of this Committee that the Federal Government cannot establish and maintain hospitals at a lower cost than the already established hospitals in local communities. The basis of this belief is that it is impossible for the Federal Government to build hospitals other than in the large centers thereby discriminating

against the ex-servicemen scattered through the rural districts. Because of the necessity of building away from the rural districts the expense of transporting veterans is added to the original cost of the hospital.

As physicians we know the value of mental contentment as an aid to recovery. We know the patient taken from his local community and transported for any distance which separated him from his family cannot be as mentally content as he would be in his local hospital and this adds a deterring factor to his recovery. If the family wishes to remain near the veteran there is the added cost of their transportation and maintenance.

This Committee, after due deliberation and consideration of all factors in the battle for complete rehabilitation, recommends to the House of Delegates of the Illinois State Medical Society the adoption of the following resolution:

WHEREAS, The Illinois State Medical Society heartily endorses the efforts of Veterans' organizations to provide adequate government hospital facilities for all service connected cases with the object of accomplishing, as far as possible, their complete rehabilitation, and

WHEREAS, the Illinois State Medical Society is in accord with "the first sentence of Section 202 (10) of the World War Veterans' Act of 1924, as amended, authorizing the hospitalization of honorably discharged veterans of specified wars who are suffering from tuberculosis, neuropsychiatric diseases and certain named general conditions regardless of the origin of such disabilities," and

WHEREAS, the Illinois State Medical Society interprets "the second sentence of Section 202 (10) authorizing the hospitalization, IN SO FAR AS EXISTING FACILITIES PERMIT, of veterans of any war not dishonorably discharged, without regard to the nature or origin of the disability" to be in spirit the authorization for the occupation of the existing beds not occupied by service connected cases or the specific cases mentioned in the first sentence of Section 202 (10) in the hospital facilities estimated for these classes. The Society does not interpret the intent of this sentence to be the enlarging of hospital facilities to meet the demand arising out of this legislation, and

WHEREAS, it is the opinion of the Illinois State Medical Society that under the present law danger exists to the life and recovery in acute medical and surgical cases in their transportation to Veterans' Hospitals from local communities where competent medical care and adequate hospital facilities are available, and

WHEREAS, the Annual Report of the Administrator of Veterans' Affairs for the year ended June 30, 1931, states on Page 6 "it appears that additional hospital facilities will not be required to meet the future demands

of either the service connected cases as a whole or the tuberculosis type of patient," and

WHEREAS, in the same report it is stated on Page 22 "upon completion of the construction authorized by the Act of Congress on March 4, 1931, there will be available in government hospitals exclusive of the beds normally required for members in the national soldiers' homes, a total of over 45,000 beds or a number sufficient to accommodate both the estimated service connected and non-service connected loads through the year 1935," therefore be it

*Resolved*, that the Illinois State Medical Society, representing 7,500 physicians in the State of Illinois opposes the further building of government hospitals and urges the utilization of the available civilian hospital beds in the local communities for the care of non-service connected disabilities; be it further

*Resolved*, that a copy of this Resolution be forwarded to the State Officers of the American Legion, the Disabled Veterans' Association, the Veterans of Foreign Wars, and to the officers of the component county societies of the Illinois State Medical Society, and be it further

*Resolved*, that a copy of this Resolution be forwarded to the Senators and all Representatives from the State of Illinois in Congress so they may be conversant with the views of the Illinois State Medical Society on this important question.

The President: This resolution from the Veterans' Service Committee came before this body one year ago and was presented for adoption.

Dr. Mather Pfeifferberger: I move that it be adopted. (Motion seconded and carried.)

The Secretary: The following resolution was introduced by members of the Chicago Medical Society as directed last year. This resolution was referred to the Council last year and the Council appointed a special committee to go over it and bring back a report to the Council on its recommendations. The Council met in Chicago September 21, 1931, at which time this recommendation was made.

#### 4. *Creation of New Councilor Districts.*

WHEREAS, the County societies in the Third Councilor District outside of Cook County have had no councilor from their counties, and

WHEREAS, all component societies are entitled to equal councilor representation, therefore be it

*Resolved*, that Article VI, Section 1 of the By-Laws of the Illinois State Medical Society be amended to read, "The Board of Trustees or as in this Constitution and By-Laws designated, the Council, shall consist of thirteen councilors," etc. . . . and be it further

*Resolved*, that Lake County be added to the



First Councilor District and that a new Councilor District be created, composed of DuPage, Kendall, Will-Grundy, Kankakee, Ford and Iroquois Counties, this new District to be designated as District Number Eleven (11) and the District to be entitled to one Councilor.

The President: I shall be pleased to have some discussion on this last resolution.

Dr. S. E. Munson, Springfield: This resolution proposes to take Ford and Iroquois Counties from the Fifth District, of which I am the councilor. I have talked with the membership and officers of these two counties and they have had no thought or consideration about this. They are not desirous of uniting with a new District. I do not think the House of Delegates should accept this proposition without some consideration from these members. I do not know what the population of the proposed district will be.

The Secretary: There will be about 300 members in the proposed district.

Dr. Munson: I am of the opinion that the population of these counties adjacent to Chicago is almost as great as the Fifth District. There is no proposition to replace these counties that are taken away from the fifth councilor district by other counties which may be more advantageous for them. The Council has not given any consideration, any more than the membership has, to this new councilor district. I think it is quite true that these counties immediately around Cook County should have a different representation from what they have had in the past, but I think there should be due consideration given to the matter of taking two counties out of the fifth district. Nothing has been said to me any more than has transpired in the Council meetings. I have had no opportunity of discussing this matter with this Committee, at least they have not asked this district. We have had no meeting with them. In view of that fact that these two counties desire to remain in the fifth district, I think this matter should be left in the hands of a Committee to report on Thursday morning.

Dr. S. R. Walker, Kankakee County: The Kankakee Branch very much desires to have this section set aside as a district. We have a very energetic man we would like to present as councilor who will be an addition to the Council.

Dr. Edward Bowe, Jacksonville: I am heartily in sympathy with this resolution, except that it does not go far enough. I should like to hear from some of the men in Cook County. Cook County has three members out of twelve. This is a vital question. Here is a section of the Society that has felt for several years that its members had no voice in Council matters. I believe we should go into it in detail because certainly in the near future there must be some redistribution of the present membership.

Dr. J. W. Van Derslice, Oak Park: Chicago is perfectly satisfied.

Dr. J. S. Nagel, Chicago: I fail to see how we can settle this by the entire House of Delegates. So far as I can see there are a great many districts in the state that are not interested. I would like to move you, Mr. Chairman, that this resolution be referred back to the original committee, that they post in a public place or announce in some manner so that the delegates and councilors from the district involved will have a chance to appear before the committee and arrive at some conclusion in the matter. The entire House of Delegates may discuss this for many hours and be no nearer a solution than it is now. (Motion seconded by Dr. R. L. Green, Peoria, and carried by a rising vote.)

On motion duly made and seconded the House of Delegates adjourned at 4:40 P. M. to meet again on Thursday morning at 8:30 A. M.

#### SECOND SESSION

*Thursday Morning, May 19, 1932*

The Thursday morning session was called to order at 8:55 A. M., by the President, Dr. R. R. Ferguson.

The President: The first order of business will be the report of the Credentials Committee.

Dr. Charles D. Center: Before presenting the final result I think it is due to the component societies to compliment them on the way their delegates were equipped when they came before the Credentials Committee this year. There has been no dispute over a single credential presented by any delegate. Since the meeting on Tuesday we have certified other delegates so that at the present time the House is composed of sixty-six downstate delegates, thirty-eight Chicago Medical Society and ten members of the Council, a total of 114. I move you that the action of the Credentials Committee be approved



and that these delegates constitute the House of Delegates. (Motion seconded and carried.)

The President: The next order of business is the roll-call by the Secretary.

The Secretary called the roll and reported that a quorum was present, fifty-two from down-state, twenty-seven Chicago Medical and nine members of the Council answering roll-call, a total of eighty-seven.

The President: The House is duly constituted for business. The next order of business is the reading of the minutes of the last meeting.

Dr. C. E. Wilkinson, Danville: I move that the reading of the minutes be dispensed with. (Motion seconded by Dr. Skaggs and carried.)

The President: The first order of business is the election of officers. Nominations for President-Elect are in order.

Dr. J. S. Nagel, Chicago: The Chicago delegation presents the name of Dr. Philip H. Kreuscher for President-Elect. (Nomination seconded by Dr. W. S. Bougher, Chicago.)

Dr. E. P. Sloan, Bloomington: I move that the nominations be closed and that the Secretary be instructed to cast the affirmative ballot for Dr. Philip H. Kreuscher for President-Elect.

Motion was seconded and carried, the ballot was cast and the President declared Dr. Kreuscher elected.

The President: Nominations for first Vice-President are in order.

Dr. C. S. Nelson, Springfield: I wish to place in nomination the name of Dr. Don Deal of Springfield. (Motion seconded by Dr. E. P. Sloan, Bloomington.)

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Don Deal for first Vice-President. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Deal elected.

The President: Nominations are now in order for second Vice-President.

Dr. Mather Pfeifferberger, Alton: I wish to place in nomination the name of Dr. C. E. Wilkinson, Danville. (Motion seconded.)

Dr. I. H. Neece, Decatur: I move that the nominations be closed and the Secretary be instructed to cast an affirmative ballot for Dr.

Wilkinson for second Vice-President. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Wilkinson elected.

The President: Nominations are now in order for Secretary.

Dr. E. P. Coleman, Canton: I wish to place in nomination the name of Dr. Harold M. Camp to succeed himself. (Nomination seconded.)

Dr. Mather Pfeifferberger, Alton: I move the nominations be closed and the President cast the affirmative ballot for Dr. Camp as Secretary. (Motion seconded and carried.)

The President cast the ballot and declared Dr. Camp elected.

The President: The nominations are now in order for Treasurer.

Dr. W. E. Kittler, Rochelle: I would like to place in nomination the name of Dr. A. J. Markley to succeed himself. Incidentally, Dr. Markley has served twenty years as Treasurer of the Society. (Nomination seconded.)

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary cast the affirmative ballot for Dr. Markley for Treasurer. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Markley elected.

The President: Nominations are now in order for Councilor for the first district.

Dr. W. E. Kittler, Rochelle: I wish to place in nomination the name of Dr. E. H. Weld, Rockford, to succeed himself. (Motion seconded by Dr. R. L. Green, Peoria.)

Dr. R. L. Green, Peoria: I move that the nominations be closed and the Secretary cast the ballot for Dr. Weld as Councilor for the first district. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Weld elected.

The President: Nominations are now in order for Councilor of the second district.

Dr. L. S. Reavley, Sterling: I wish to nominate Dr. E. C. Cook of Mendota as Councilor of the second district. (Nomination seconded.)

Dr. C. D. Center, Quincy: I move that the nominations be closed, the Secretary instructed to cast the affirmative ballot for Dr. Cook. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Cook elected.

The President: Nominations are in order for Councilor of the third district.

Dr. James H. Hutton, Chicago: I place in nomination the name of Dr. R. K. Packard as Councilor of the third district. (Nomination seconded.)

Dr. Robert Hayes, Chicago: I move the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Packard. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Packard elected.

The President: Nominations are in order for Councilor of the eighth district.

Dr. C. E. Wilkinson, Danville: I wish to nominate Dr. Cleaves Bennett, Champaign, to succeed himself. (Nomination seconded by Dr. R. L. Green of Peoria.)

Dr. Robert Hayes, Chicago: I move the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Bennett. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Bennett elected.

The President: Nominations are now in order for members of the Standing Committee: Public Policy.

(Nominations were presented in each case, the Secretary instructed to cast the affirmative ballot and the President declared them elected.)

The following Committees were elected:

*Public Policy:* W. S. Bougher, Chicago; Louis D. Smith, Chicago; George Michell, Peoria.

*Medical Legislation:* John R. Neal, Springfield, *Chairman*; Edward Bowe, Jacksonville; Thomas P. Foley, Chicago.

*Medico-Legal:* J. R. Ballinger, Chicago; C. U. Collins, Peoria. (Two members elected.)

*Relations to Public Health Administration:* F. F. Maple, Chicago; Thomas Meany, Chicago; Frank Heda, Chicago; Ralph Hinton, Elgin; T. B. Knox, Quincy.

*Medical Education and Hospitals:* J. P. Simmonds, Chicago; W. R. Marshall, Clinton; H. O. Munson, Rushville.

The President: The next order of business is the election of a Permanent Historian.

Dr. Mather Pfeifferberger, Alton: I wish to nominate Dr. I. S. Cutter to succeed himself. (Nomination seconded.)

Dr. J. S. Nagel, Chicago: I move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Cutter. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Cutter elected.

The President: The next order of business will be the election of delegates to the American Medical Association.

(Nominations were presented in each case and the following delegates were elected.)

C. J. Whalen, Chicago; John J. Pflock, Chicago; G. H. Mundt, Chicago; W. D. Chapman, Silvis; T. O. Freeman, Mattoon.

The President: The next order of business will be the election of alternate delegates to the American Medical Association.

(Nominations were presented and the following alternates elected.)

C. B. Reed, Chicago; C. S. Nelson, Springfield; N. S. Davis III, Chicago; G. C. Otrich, Belleville; M. I. Kaplan, Chicago.

The President: The next order of business is fixing the per capita tax for the coming year.

Dr. J. W. Van Derslice, Oak Park: I move that the per capita tax remain the same, \$7.00 per year. (Motion seconded by Dr. R. L. Green, Peoria, and carried.)

The President: The next order of business is the report of the Resolutions Committee.

1. *Resolution of Sympathy to the family of Dr. Lucius H. Zeuch.*

WHEREAS, Almighty God has removed from our midst a much beloved and valued member in the person of Lucius H. Zeuch,

*Be it resolved*, that we, the members of the House of Delegates of the Illinois State Medical Society, do hereby express our sincere regrets that so honored a member, highly skilled in his professional attainments, pre-eminent in his knowledge of history of the world, a devoted father and beloved husband, a self-sacrificing devotee to the relief of mankind, should be taken from us.

*Be it further resolved*, that this resolution be made a permanent record in our proceedings and a copy of the same be sent to his widow and family.

Dr. E. P. Sloan, Bloomington: I move the resolution be adopted.

Motion seconded and carried.



2. Dr. E. P. Sloan, Bloomington: I move that a similar resolution be sent to the family of Dr. George Weber of Peoria, H. F. Bruning, Chicago, and Wilhelm L. Baum, Chicago. (Motion seconded and carried.)

Dr. E. P. Sloan, Bloomington: I move that a letter of sympathy be sent to Dr. Thomas P. Foley, Chicago, who had to return to Chicago on account of the sudden death of his brother. (Motion seconded by Dr. Whalen and carried.)

2. *Amendment to Article 5 of the Constitution.*

*Resolved*, that the word *thirty* in the eleventh line of Article 5 of the Constitution and By-Laws be changed to the word *fifty* and that the word *ten* in the twelfth line of the same section be changed to *twenty*, making the last sentence of Section 5 of the Constitution and By-Laws to read as follows:

Fifty delegates representing not less than twenty counties shall constitute a quorum for the transaction of business.

Dr. E. P. Sloan, Bloomington: This resolution is automatically laid over until next year.

3. *Classification of Estates.*

WHEREAS, Doctors throughout the State of Illinois have for many years rendered professional services to persons in their last illness amounting to considerable amounts, and after death of such persons, in the administration of their estates, claims for medical services in such cases have been uncollectable due to the classification provided for under and by virtue of Section 70 of Chapter 3 of the Revised Statutes of the State of Illinois, the same being: "An Act in Regard to the Administration of Estates."

AND WHEREAS, under and by virtue of said Act it is provided,

"All demands against the estate of any Testator or intestate shall be divided into classes in manner following, to wit:

"First. Funeral expenses and necessary costs of administration.

"Second. The Widow's award, if there be a widow; and children, if there are children and no widow. .

"Third. Expenses attending last illness, including physician's bills and demands due common laborers or household servants of deceased, for labor."

AND WHEREAS, as a result of such classifica-

tion the Medical Profession is and has been in innumerable cases unable to collect anything on estates of decedents, where there is a limited amount of property, and have suffered tremendous losses on such cases;

AND WHEREAS, it is the sense of the House of Delegates of the Illinois State Medical Society that the present classification, under said Act, is unfair to the Medical Profession, and that the services of the Medical Profession in the last illness should be so classified as to be *first after the payment of the necessary cost of administration.*

*Therefore be it resolved* by the House of Delegates of the Illinois State Medical Society at its annual meeting held in Springfield, Illinois, May 17 to 19, 1932, that the Council and Legislative Committee be asked to present to the state Legislature at its next session a Bill providing for the amendment of said Section 70 of Chapter 3 of the Revised Statutes of Illinois, concerning the classification of demands against an estate, so that the claim for Doctor's services in the last illness of any deceased person shall be classified in such manner that such claims will be paid first following the costs of administration.

Dr. E. P. Sloan, Bloomington: I move its adoption. (Motion seconded by Dr. Wilkinson and carried.)

4. *Instruction in Hygiene at the University of Illinois.*

WHEREAS, it has come to the attention of the House of Delegates of the Illinois State Medical Society that a movement is on foot at the University of Illinois with the end in view of changing the status of courses of instruction in the subject of hygiene; and

WHEREAS, the members of the House of Delegates know from observation and personal experience that a vast amount of harm to health and of economic loss occurs because a large percentage of the people, including many college graduates, are not adequately informed concerning the principles involved in the maintenance of health and the prevention of disease; and

WHEREAS, this lack of knowledge makes difficult a wise choice of the reading matter, of propaganda and of advice and counsel, purporting to relate to health; and

WHEREAS, it is deemed to be the primary function of a public institution of higher learn-



ing to guide students into channels of study which will teach them how to live; therefore be it

*Resolved*, that this House of Delegates is of the unanimous and unequivocal opinion that the teaching of hygiene ought to be continued as a curriculum course in the University of Illinois, and

*Resolved*, that this course in hygiene should be a compulsory rather than an elective course; and

*Resolved*, that the course in hygiene should be made a part of the required studies for freshmen; and be it further

*Resolved*, that the President of the Illinois State Medical Society be authorized to appoint a committee of five members or less to consult with the President of the University of Illinois concerning this matter; and

*Resolved*, that these resolutions be brought to the attention of the Board of Trustees of the University of Illinois and that a copy of the resolutions be placed in the hands of the President of the University of Illinois.

Dr. John R. Neal, Springfield: I move its adoption. (Motion seconded and carried.)

5. *Lien Bill*. (See page 31.)

Dr. E. P. Sloan, Bloomington: I move the adoption of the resolution. (Motion seconded.)

Dr. J. R. Neal: Mr. President, I would like to make a few remarks in reference to the resolution in question. Evidently, there is a misunderstanding on the part of the Industrial surgeons as to how the Legislative Committee of the Illinois State Medical Society functions. It would rather appear to me that the statement made by Dr. Nordholz, Secretary of the State Society of Industrial Medicine and Surgery, in the resolution needs some explanation.

He charges that a similar bill last year was referred to the State Legislative Committee and they passively endorsed it and informed him that they had no way or means of presenting the bill to the Legislature. This is somewhat unfair, I believe, on the part of Dr. Nordholz because I have in my brief case here a number of letters, which I will not take the time to read, in which it shows that the Legislative Committee did cooperate with him in several ways during the last session.

Any measures which have to do for the welfare of the medical profession should be submitted in ample time to the Legislative Committee so that the attention of the Council of the Illinois State Medical Society could be called to the matter. After they approve of the bill, the Legislative Committee is then directed to use every effort to have the measure successfully enacted.

Obviously, if the bill is for the better protection of

hospitals, the Hospital Association should show more than a mere desire to have such a bill enacted.

Personally, I am in favor of some sort of bill to be worked out along the lines that this proposed measure advances.

Dr. E. B. Fowler, Chicago: I think there has been incomplete presentation on the part of the last speaker. At any rate it so appears to me. I am a member of a great many medical organizations and incidentally I am a member of the Society of Industrial Medicine and Surgery. I gather that the speaker has not been properly approached. Personally I know there has been an effort in the last two years to bring this matter before the medical profession. It has been brought before the Cook County Society. I am perfectly willing to have the last speaker, if it is his desire, draw up the proper form. The whole thing I want to bring out is this, that thousands and thousands of dollars are being saved deliberately by the various insurance companies of this State simply because the company insuring the injured person settles and all too often the hospital, the nurses and the doctors have not been paid. What I want is to get some action, so the just bills are paid. The Society of Industrial Medicine and Surgery has been working for two years to get a proper bill. The states of Massachusetts and New Jersey have lien bills which are poor but they are better than none. It is entirely unfair that the legal profession can put a lien to any such claim but the medical profession have no such protection. I appeal to you to do whatever is necessary so that we can collect our bills legally and have some fair means of protection.

Dr. E. P. Sloan: I hope no one will misunderstand the action of this Committee. We endorse Dr. Fowler's resolution, but will feel if we can put it in this way we will get farther.

Dr. Fowler: These various organizations are with us but somebody has to take the lead. It seemed to us that it is the duty of the Illinois State Medical Society to get it into legal form. These other organizations that are in favor of it will help us.

(Motion to adopt resolution carried.)

Dr. J. W. Van Derslice, Oak Park: Since the statement of the Chairman of the Legislative Committee has been questioned, I move a vote of confidence in the Chairman of the Legislative Committee. (Motion seconded and carried.)

# 6. *The Sterilization of Criminals.*

WHEREAS, the question of the sterilization of criminals, insane and feeble-minded, is in part a medical question and as such should be considered and analyzed by medical men,

*Be it resolved*, that this question be carefully studied by the Committee on Relations to Public Health with a request to report at the next annual meeting of the Illinois State Medical Society.

Dr. E. P. Sloan, Bloomington: I move its adoption. (Motion seconded and carried.)

# 7. *Veterans' Service Committee Resolution.* (See page 33.)

Dr. E. P. Sloan, Bloomington: I move the adoption of the resolution. (Motion seconded.)

Dr. W. C. Blaine, Tuscola: I would like to ask if they mean standardized hospitals or all hospitals in the community.

Dr. Sloan: It does not state in the resolution. I think that could well be left to the Federal Government.

Dr. G. H. Mundt, Chicago: Because of the fact that Dr. Shoulders, whom we all regard very highly, has been a very important individual in this work, I would like to ask if there is any chance to include Dr. Shoulders' recommendation in this resolution.

The Secretary: At the meeting of the American Medical Association last week in New Orleans at the request of Dr. Foley I submitted this resolution for Dr. Shoulders' inspection. He made suggestions as to a few changes in one or two lines. So Dr. Shoulders has approved this resolution.

Dr. Mundt: The Secretary does not get what I say. Is there a Federal Government interest in this?

The Secretary: There is not.

Dr. J. W. Van Derslice, Oak Park: Years ago the delegates from Illinois to the American Medical Association brought in a resolution requesting the Council on Medical Education to do something about standardizing the small hospitals. Nothing was done. As soon as these resolutions are finished I will make a motion to clear that up.

(Motion to adopt resolution carried.)

# 8. *A Bill for an Act to Amend Sections 3 and 8 of "An Act for the Prevention of Blindness from Ophthalmia Neonatorum."* (See page 32.)

Dr. E. P. Sloan, Bloomington: I move the adoption of the resolution. (Motion seconded and carried.)

# 9. *Creation of a New Councilor District.* (See page 33.)

Dr. E. P. Sloan, Bloomington: I move the adoption of the resolution. (Motion seconded and carried.)

# 10. *Editorial by Peter B. Kyne.*

WHEREAS, there appeared in the *Chicago Evening American* of March 12, 1932, an editorial entitled, "For a Good Start Be Born in Chicago" in which credit is given to the doctor for his efforts in reducing the infant mortality, and

WHEREAS, there appeared in the *Herald Examiner* of Chicago of Friday, April 22, 1932, on the second editorial page an entire column by Peter B. Kyne entitled, "A Plea for Doctors," in which the doctor is beautifully commended for his work and sacrifice and in which the patient is earnestly admonished to express his appreciation of the physician's services; therefore

*Be it resolved*, that the delegates of the Illinois State Medical Society express their hearty appreciation of the 7,500 physicians of Illinois for the sentiment expressed in these articles and that a copy of this resolution be sent to the editors of these publications and to Peter B. Kyne.

Dr. J. W. Van Derslice, Oak Park: I move the adoption of the resolution. (Motion seconded and carried.)

# 11. *Resolution of Thanks.*

*Resolved*, that the Secretary be instructed to communicate in every way possible the thanks of the Illinois State Medical Society for the entertainment and the way we have been taken care of in Springfield and that he write to every one who has participated in our care, especially the general manager, Dr. Don Deal.

Dr. E. P. Sloan, Bloomington: I move the adoption of the resolution. (Motion seconded by Dr. C. E. Wilkinson, Danville, and carried.)

Dr. J. W. Van Derslice, Oak Park: Through the ordinary channels of a resolution we requested the Council on Medical Education and Hospitals to give the downstate hospitals a break in the matter of classification. As nothing has been done I move you that we request the Council of the Illinois State Medical Society in some



manner they see fit to get in contact with the Board of Trustees of the American Medical Association to see if this matter cannot be straightened out. (Motion seconded by Dr. E. P. Sloan, Bloomington.)

Dr. C. E. Humiston, Chicago: I think there should be a little discussion on this. First, as to the authority of the Trustees and the Council on Medical Education and Hospitals. The Council on Medical Education and Hospitals consists of seven members appointed by seven different presidents. They have to look to the Board of Trustees for funds but not for supervision. The House of Delegates has control of certain matters. It has original jurisdiction and there is no appeal to anybody. If there is not money enough, the Trustees are asked for money. There is no need to ask the Trustees to order the Council on Medical Education to do something. The Council on Medical Education and Hospitals is entirely without legal authority in any and every case. Neither does it attempt to coerce any hospital. It is interested in hospitals for two reasons; first, as to the ethical procedure in that hospital, and second, as to the educational facilities afforded. Over 7,000 hospitals in the United States have been thoroughly investigated to see if they are fit places for people to go to be treated. If so, the hospital is recommended. Second, as to educational qualifications. There are 690 hospitals qualified for the training of interns. They must have certain things, certain equipment and a staff that is both proficient and ethical. At the last meeting at New Orleans a resolution by one of the delegates from Illinois was put through which provides in an advisory way, that hospitals where interns are trained should be kept free from doctors who are not members of the American Medical Association. The authority to do anything does not reside in the Council on Medical Education or in anyone else except in the management of the hospital. If the management of the hospital wishes the approval of the Council, the hospital must comply with the qualifications approved by the House of Delegates and published in the *JOURNAL*. Unless the hospital qualifies according to the American Medical Association it will not get interns. Nearly 1,100 interns were asked for in excess of the number available. You cannot get interns into hospitals which are not suitable places.

Hospitals are qualified to train residents provided they have certain qualifications. The American Medical Association does not care whether they qualify, but if they do qualify they must live up to the specifications; otherwise their names are stricken from the lists. If a hospital has not patients enough to give the interns training to fit them to practice medicine, it cannot get interns. I do not know what more can be done. The Council on Medical Education is conservative. It has instituted regulations which have reduced the number of medical schools from 160 to 76. Up to a year ago, of the colleges only twelve were requiring their graduates to have internships. The resolution that went through the American Medical Association a year ago and OK'ed by the House of Delegates asked that acceptable medical colleges assist their students in obtaining intern training and that after the academic year of 1933 and 1934 all acceptable colleges complete arrangements, so that each annual announcement would contain a record of the hospital training of the graduating class the year before. Seventy-five of the medical schools have complied. Just what can be done to help a hospital of thirty-five beds in its problem is difficult to say. I would be glad to hear some discussion on this and I would be glad to answer questions about the work of the Council.

Dr. J. W. Van Derslice, Oak Park: I move that the whole matter be referred to the Council of the Illinois State Medical Society. (Motion seconded and carried.)

The President: Through the action of the Council this morning a new councilor district has been created, known as District 11. The men from that district have caucussed and have a name to present as a member of the Council. Before calling on them I will ask the Secretary to name the counties to be included in the new district.

The Secretary: The counties of DuPage, Kendall, Will-Grundy, Kankakee, Iroquois and Ford will be included in District 11.

Dr. S. R. Walker, Kankakee County: I would nominate Edwin S. Hamilton from Kankakee as Councilor of the eleventh district. (Nomination seconded.)

Dr. Mather Pfeifferberger, Alton: I move that the nominations be closed and the Secretary



be instructed to cast the ballot for Dr. Hamilton. (Motion seconded and carried.)

The Secretary cast the ballot and the President declared Dr. Hamilton elected.

The President: The next order of business is the place of meeting for 1933.

Dr. John R. Neal, Springfield: We would like to extend three or four minutes to a representative of our local Chamber of Commerce who has a statement to make regarding the facilities of Springfield to take care of this convention during Legislative year.

Mr. Koller: I know that it has been a distinct pleasure for me to work, as I have done, for this group. I will add that I never found a local committee that worked me like this local committee did. If it is your desire to come back next year I want you to know that whether it is legislative year or not you are welcome to come and we have the facilities to take care of you.

Dr. R. L. Green, Peoria: I desire to offer the facilities and accommodations of Peoria for the next year. We have hotel facilities for 1,700 to 1,800 people and we have a new meeting place since the last convention was held in Peoria.

Dr. Mather Pfeiffenberger, Alton: I move that we go to Peoria. (Motion seconded.)

Dr. J. W. Van Derslice, Oak Park: As a substitute motion I move that the question of a place of meeting for 1933 be referred to the Council. (Motion seconded and carried.)

On motion duly made and seconded the House of Delegates adjourned *sine die* at 10:18 A. M.

#### RESOLUTIONS ON THE DEATH OF DOCTOR PERISHO

WHEREAS, it has been the will of the Divine Ruler of the Universe to take from our midst our highly esteemed friend and fellow worker, Eley E. Perisho, and,

WHEREAS, Dr. Perisho has been an active worker for the interests of Organized Medicine for many years, acting in the capacity of a County Medical Society Secretary for seventeen years, and a member of this Council for the past twelve years, therefore,

*Be it Resolved* that the Council of the Illinois State Medical Society and its members individually, do hereby express our sincere regrets that

so honored a member of our Organization, highly skilled in his professional attainments, a devoted father and beloved husband, should be taken from us.

*Be it Further Resolved*, that a copy of this resolution be sent to the bereaved family of Dr. Perisho, and that it be made a permanent record in our proceedings, and also be published in the Illinois Medical Journal.

Signed:

S. E. MUNSON,

EDGAR C. COOK,

B. K. PACKARD,

Committee.

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#### OLD JOURNALS WANTED

We have requests from time to time for old copies of the JOURNAL to complete sets for libraries. If any member of the Society wishes to dispose of copies and will list them, with terms of sale with the Managing Editor he will refer requests directly to those who make the offers of disposal.

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MANAGING EDITOR,

1618 Juneway Terrace, Chicago.

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#### THE CHICAGO SOCIETY FOR PERSONALITY STUDY

There has recently been organized in Chicago the Chicago Society for Personality Study, consisting of psychiatrists, psychologists, sociologists, educators, physiologists and others, with the object of integrating the sciences in a scientific body devoted to the study of personality in all its phases, normal and abnormal, child and adult. Its membership is limited to 100. It contains the best students of personality problems and human behavior connected with various scientific and educational institutions in and around Chicago.

The officers elected are as follows: president, Dr. Meyer Solomon, Department of Neurology, Northwestern University Medical School; vice-president, Prof. Ernest W. Burgess, Department of Sociology, University of Chicago; secretary-treasurer, Dr. Paul L. Schroeder, Director, Institute for Juvenile Research.

The organization committee included, in addition to the above three, Dr. John Favill, Department of Neurology, Rush Medical College; Prof. Robert H. Gault, Department of Psychology, Northwestern University; Prof. Arthur J. Todd, Department of Sociology, Northwestern University, and Prof. Harvey Carr, Department of Psychology, University of Chicago.

## HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The June 11, 1932, issue of The Journal A. M. A. contains the names of 6,613 hospitals, sanatoriums and related institutions that are located in the United States and 202 in the insular possessions. It omits the names of 490 hospitals which, after investigation, were not accepted. The inclusion of the name of any institution may be taken as an indication that evidence concerning irregular or unsafe practices in that institution has not come to the attention of the Council on Medical Education and Hospitals. For convenience, the list in each state is given in two sections: (1) hospitals and sanatoriums, and (2) related institutions. The related institutions include nursing homes, school infirmaries, prison infirmaries, custodial and other institutions designed to give some medical nursing or convalescent care in an ethical and acceptable manner, but not strictly hospitals; also some general hospitals lacking certain essentials. In the statistics the two classifications are consolidated.

## KEY TO SYMBOLS AND ABBREVIATIONS

\*Approved for general internship, the fifth year in medicine, by the Council on Medical Education and Hospitals.

†Approved for residency in a specialty for graduates in medicine who have already had a general internship or its equivalent in practice.

‡School of nursing accredited by board of nurse examiners for state in which it is located.

§Affiliated for nurse training on state accredited basis.

¶Accepts Negro patients (not applicable to nervous and mental hospitals).

||Department for mental patients.

The column headed "Type of Service" tells what diseases or conditions are treated in each institution, as follows:

Chil	Children's	Epil	Epileptic	Iso	Isolation	N&M	Nervous and mental
Conv	Convalescence and Rest	EENT	Eye, Ear, Nose and Throat	Inst	Institutional	Ortho	Orthopedic
Chron	Chronic	Gen	General	Mater	Maternity	Sk&Ca	Skin and Cancer
Dr&Al	Drug and Alcoholic	Indus	Industrial	MenDef	Mentally Deficient	TB	Tuberculosis

The column headed "Control" indicates for each institution the ownership, control, or auspices under which it is conducted as follows:

Cy&Co	City and County	Indian	U. S. Indian Service	Part	Partnership
Fed	Federal	Indiv	Individually owned	USPHS	United States Public Health Service
Frat	Fraternal	Indus	Industrial	VetAd	Veterans Administration
Indep	Independent hospital association				

The following Illinois Hospitals have met with the approval of the Council on Medical Education and Hospitals of the American Medical Association.

## ILLINOIS

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Bassinets	Outpatient Department	Total Births	Patients Admitted
Alton, 30,151—Madison Co.								
Alton State Hospital†.....	N&M	State	1,316	1,417	...	No	...	...
St. Anthony's Infirmary & Sanatorium.....	Gen	Church	98	50	...	No	...	385
St. Joseph's Hospital†.....	Gen	Church	75	41	10	No	195	2,417
Amboy, 1972—Lee Co.								
Amboy Public Hospital.....	Gen	Indep	13	3	2	No	39	149
Anna, 3,436—Union Co.								
Anna State Hospital.....	N&M	State	1,957	1,925	...	No	...	420
Hale-Willard Mem. Hospital.....	Gen	City	20	8	4	No	8	250
Annawan, 489—Henry Co.								
J. M. Young Hospital.....	Gen	Indiv	18	10	2	No	7	1,515
Aurora, 46,589—Kane Co.								
Copley Hospital†.....	Gen	Indep	67	47	18	No	407	2,104
Kane County Spring Brook Sanatorium.....	TB	County	87	78	...	Yes	...	119
Mercyville Sanatorium.....	N&M	Church	200	145	...	No	...	234
St. Charles Hospital†.....	Gen	Church	80	47	20	No	325	2,719
St. Joseph's Mercy Hospital†.....	Gen	Church	100	35	20	No	223	1,145
Batavia, 5,045—Kane Co.								
Bellevue Place Sanatorium.....	N&M	Indep	38	33	...	No	...	8
Pox River Sanatorium.....	TB	Indep	47	46	...	No	...	53
Belleve, 28,425—St. Clair Co.								
St. Elizabeth's Hospital.....	Gen	Church	110	58	15	No	212	2,050
Station Hospital.....	Gen	Army	25	10	...	No	...	138
Belvidere, 8,123—Boone Co.								
Highland Hospital.....	Gen	Indep	25	14	10	No	83	493
St. Joseph's Hospital.....	Gen	Church	25	9	10	No	94	322
Benton, 8,219—Franklin Co.								
Moore Hospital.....	Gen	Indiv	30	13	1	No	6	329
Berwyn, 47,027—Cook Co.								
Berwyn Hospital.....	Gen	Indep	75	25	18	No	...	...
Bloomington, 30,930—McLean Co.								
Mennonite Hospital.....	Gen	Church	35	32	6	No	97	934
St. Joseph's Hospital†.....	Gen	Church	200	105	25	No	305	3,124
Blue Island, 16,534—Cook Co.								
St. Francis Hospital.....	Gen	Church	85	43	15	No	261	1,931
Brees, 1,957—Clinton Co.								
St. Joseph's Hospital.....	Gen	Church	25	12	2	No	21	395
Bushnell, 2,850—McDonough Co.								
Elm Grove Sanatorium.....	TB	County	36	25	...	No	...	52
Cairo, 13,532—Alexander Co.								
St. Mary's Hospital.....	Gen	Church	100	40	8	No	165	1,236
Canton, 11,718—Fulton Co.								
Graham Hospital.....	Gen	City	43	30	13	No	123	1,408
Carbondale, 7,528—Jackson Co.								
Holden Memorial Hospital.....	Gen	Church	50	20	6	No	63	575
Carlinville, 4,144—Macoupin Co.								
Macoupin Hospital.....	Gen	Indiv	20	15	6	No	43	612
Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Bassinets	Outpatient Department	Total Births	Patients Admitted
Carmi, 2,932—White Co.								
Carmi Hospital.....	Gen	Part	10	5	1	No	4	201
Centralia, 12,583—Marion Co.								
St. Mary's Hospital.....	Gen	Church	75	22	6	No	48	1,101
Champaign, 20,348—Champaign Co.								
Burnham City Hospital.....	Gen	City	70	59	16	No	251	2,178
Charleston, 8,012—Coles Co.								
M. A. Montgomery Memorial Sanatorium.....	Gen	Indep	28	11	4	No	24	360
Oakwood Hospital.....	Gen	Part	23	12	4	No	24	424
Chatsworth, 981—Livingston Co.								
Chatsworth Hospital.....	Gen	Indiv	10	4	2	No	...	...
Chicago, 3,376,438—Cook Co.								
Albert Merritt Billings Hospital (Medical & Surgical Department of University of Chicago Clinics)								
Alexian Brothers Hospital†.....	Gen	Church	287	204	...	No	...	3,699
American Hospital†.....	Gen	Indep	134	70	16	No	185	1,764
Augustana Hospital†.....	Gen	Church	350	224	25	Yes	614	6,311
Belmont Hospital.....	Gen	Indep	100	83	36	Yes	754	3,304
Bethany Hospital.....	Gen	Indep	49	14	16	No	165	499
Bobs Roberts Memorial Hospital for Children (Pediatric Department of University of Chicago Clinics)								
Burnside Hospital.....	Gen	Indep	65	35	16	No	...	...
Burrows Hospital.....	Gen	Indiv	40	15	6	No	29	1,331
Chicago Eye, Ear, Nose and Throat Hospital.....	EENT	Indep	75	14	...	Yes	...	1,684
Chicago Fresh-Air Hospital.....	TB	Indep	104	88	...	No	...	227
Chicago Lying-In Hospital.....	Mater	Indep	157	108	140	Yes	2,849	3,938
Chicago Memorial Hospital.....	Gen	Indep	88	61	20	Yes	201	2,292
Chicago Municipal Tuberculosis Sanatorium.....	TB	City	1,222	1,125	3	No	1	1,763
Chicago Sanatorium.....	N&M	Indep	110	36	...	No	...	1,931
Chicago State Hospital.....	N&M	State	3,866	3,805	...	Yes	...	1,248
Children's Memorial Hospital.....	Chil	Indep	272	171	...	Yes	...	3,373
Columbus Hospital.....	Gen	Church	136	85	23	Yes	213	3,851
Cook County Hospital.....	Gen	County	3,300	2,339	115	No	3,536	55,151
Cook County Psy. Hospital.....	N&M	County	175	116	...	No	...	5,170
Daily Hosp. & Sanit. (col.).....	Gen	Indep	28	20	6	Yes	...	...
Durand Hospital.....	Iso	Indep	60	46	...	No	...	704
Edgewater Hospital.....	Gen	Indep	120	72	20	No	360	2,880
Englewood Hospital.....	Gen	Indep	103	83	30	No	576	3,051
Evangelical Deaconess Hospital.....	Gen	Church	66	34	18	No	217	1,205
Evangelical Hospital.....	Gen	Church	200	138	60	No	1,417	6,312
Francis E. Willard Hospital.....	Gen	Indep	159	72	26	Yes	594	3,245
Franklin Boulevard Hospital.....	Gen	Indep	60	46	20	No	292	2,271
Garfield Park Hospital.....	Gen	Indep	196	102	35	Yes	741	4,138
Grant Hospital.....	Gen	Indep	250	155	50	Yes	1,193	5,810
Henrotin Hospital.....	Gen	Indep	75	54	8	Yes	112	2,037
Holy Cross Hospital.....	Gen	Church	100	58	20	No	484	3,366



Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinsets	Outpatient Department	Total Births	Patients Admitted
Hospital of St. Anthony de Padua*††.....Gen	Church	Indus	220	185	45	No	1,226	6,742
Illinois Central Hospital*†.....Gen	Indus	Indus	250	149	21	Yes	333	4,196
Illinois Eye Ear Infirmary*†.....EENT	State	Indus	183	155	...	Yes	...	3,958
Illinois Masonic Hospital*†.....Gen	Frat	Indus	142	79	25	Yes	400	2,711
Illinois Steel Co. Hospital*†.....Indus	Indus	Indus	30	19	...	Yes	...	137
Jackson Park Hospital*†.....Gen	Indep	Indus	250	127	42	Yes	...	...
John B. Murphy Hospital*†.....Gen	Church	Indus	100	55	29	No	542	2,260
Lake View Hospital*†.....Gen	Indep	Indus	112	52	32	No	323	2,248
Lewis Memorial Maternity Hosp. Mater	Church	Indus	264	43	250	Yes	1,332	...
Lutheran Deaconess Home and Hospital*††.....Gen	Church	Indus	175	138	42	No	809	4,746
Lutheran Memorial Hospital*††.....Gen	Church	Indus	157	89	34	No	583	3,258
Martha Washington Hospital*†.....Gen	Indep	Indus	91	49	14	No	93	1,491
Mercy Hospital*†.....Gen	Church	Indus	365	220	35	No	593	6,770
Michael Reese Hospital*††.....Gen	Indep	Indus	583	388	71	Yes	1,720	12,144
Misericordia Hospital and Infants' Home*†.....Mater	Church	Indus	20	9	26	Yes	283	319
Mother Cabrini Memorial Hosp*†.....Gen	Church	Indus	150	83	20	No	336	3,308
Mt. Sinai Hospital*†.....Gen	Indep	Indus	160	118	40	Yes	969	4,770
Municipal Contagious Disease Hospital*†.....Iso	City	Indus	428	281	...	No	...	4,779
Nancy Adele McElwee Memorial and Gertrude Dunn Hicks Memorial Hospital (Orthopedic Department of University of Chicago Clinics)	City	Indus	...	...	...	...	...	...
Nelson Morris Hospital*†.....Gen	Indiv	Indus	14	9	2	Yes	3	...
North Avenue Hospital*†.....Gen	Indep	Indus	300	40	35	Yes	73	547
North Chicago Hospital*†.....Gen	Indep	Indus	185	98	50	No	1,078	4,403
Norwegian-American Hosp.*†.....Gen	Indep	Indus	28	...	...	No	...	132
Parkway Sanitarium*†.....N&M	Indep	Indus	164	84	35	No	345	2,970
Passavant Memorial Hospital*†.....Gen	Indiv	Indus	60	19	5	Yes	24	892
Peoples Hospital*†.....Gen	Indep	Indus	50	18	...	No	...	227
Pinel Sanitarium*†.....N&M	Indep	Indus	...	...	...	...	...	...
Post Graduate Hospital & Medical School*†.....Gen	Indep	Indus	85	24	2	Yes	...	1,300
Presbyterian Hospital*††.....Gen	Church	Indus	413	350	37	No	746	11,783
Provident Hospital (col.)*†.....Gen	Indep	Indus	59	40	6	Yes	114	164
Ravenswood Hospital*†.....Gen	Indep	Indus	153	113	40	No	1,077	4,344
Research and Educational Hospital*†.....Gen	State	Indus	362	155	25	Yes	405	3,820
Roseland Community Hospital*†.....Gen	Indep	Indus	101	76	27	Yes	491	2,778
St. Anne's Hospital*†.....Gen	Church	Indus	250	193	60	Yes	1,428	5,267
St. Bernard's Hospital*†.....Gen	Church	Indus	200	112	30	No	731	5,890
St. Elizabeth's Hospital*††.....Gen	Church	Indus	248	117	39	Yes	635	4,410
St. Joseph's Hospital*†.....Gen	Church	Indus	185	105	35	Yes	668	3,789
St. Luke's Hospital*††.....Gen	Indep	Indus	604	453	55	Yes	1,249	13,174
St. Mary of Nazareth Hosp.*†.....Gen	Church	Indus	212	146	38	No	800	4,920
Sarah Morris Hospital for Children (Included in Michael Reese Hospital)	Church	Indus	...	...	...	...	...	...
Shriners' Hospital for Crippled Children*†.....Ortho	Frat	Indus	60	62	...	Yes	...	202
South Chicago Community Hospital*†.....Gen	Indep	Indus	67	42	15	No	278	2,427
South Shore Hospital*†.....Gen	Indep	Indus	100	69	25	No	617	2,863
Streeter Hospital*†.....Gen	Indiv	Indus	50	20	6	No	...	...
Swedish Covenant Hospital*†.....Gen	Church	Indus	180	90	45	Yes	961	3,218
U. S. Marine Hospital*†.....Gen	USPHS	Indus	165	161	...	Yes	...	1,016
University Hospital*†.....Gen	Indep	Indus	100	60	21	No	210	2,182
University of Chicago Clinics*†.....Gen	Indep	Indus	367	201	2	Yes	...	4,615
Washington Boulevard Hosp.*†.....Gen	Indep	Indus	100	68	10	Yes	139	2,347
Washingtonian Home*†.....Gen	Indep	Indus	...	...	...	...	...	...
Washington Park Community Hospital*†.....Gen	Indep	Indus	140	67	20	No	...	...
Welles Park Hospital*†.....Gen	Indep	Indus	50	30	10	Yes	108	...
Wesley Memorial Hospital*†.....Gen	Church	Indus	247	148	21	No	600	4,837
West Side Hospital*†.....Gen	Indep	Indus	142	74	19	Yes	690	3,131
Women and Children's Hospital*†.....Gen	Indep	Indus	100	61	25	Yes	485	1,854
Woodlawn Hospital*†.....Gen	Indep	Indus	140	67	30	No	514	3,073
Chicago Heights, 22,321—Cook Co.	Church	Indus	100	60	15	No	220	2,109
St. James' Hospital*†.....Gen	Church	Indus	...	...	...	...	...	...
Clinton, 5,920—De Witt Co.	City	Indus	25	12	4	No	42	300
Dr. John Warner Hospital*†.....Gen	City	Indus	...	...	...	...	...	...
Compton, 277—Lee Co.	Indiv	Indus	10	4	2	No	11	169
Compton Hospital*†.....Gen	Indiv	Indus	...	...	...	...	...	...
Danville, 36,765—Vermillion Co.	Indep	Indus	158	77	12	Yes	182	2,571
Lake View Hospital*†.....Gen	Church	Indus	156	115	25	Yes	277	5,209
St. Elizabeth's Hospital*†.....Gen	Church	Indus	...	...	...	...	...	...
Decatur, 57,510—Macon Co.	City	Indus	...	...	...	...	...	...
Decatur and Macon County Hospital*†.....Gen	Cy&Co	Indus	141	72	24	Yes	423	2,674
Macon County Tuberculosis Sanatorium*†.....TB	County	Indus	80	53	...	Yes	...	67
St. Mary's Hospital*†.....Gen	Church	Indus	135	104	18	No	349	3,017
Wabash Employees' Hospital*†.....Indus	Indus	Indus	85	25	...	Yes	...	911
De Kalb, 8,545—De Kalb Co.	City	Indus	...	...	...	...	...	...
De Kalb County Tuberculosis Sanatorium*†.....TB	County	Indus	22	29	...	No	...	30
De Kalb Public Hospital*†.....Gen	City	Indus	40	18	12	No	141	806
St. Mary's Hospital*†.....Gen	Church	Indus	45	24	7	No	...	...
Esplanades, 8,798—Cook Co.	Indiv	Indus	...	...	...	...	...	...
Northwestern Hospital*†.....Gen	Indiv	Indus	16	New	5	No	...	...
Dixon, 9,908—Lee Co.	City	Indus	60	30	11	No	107	907
Dixon Public Hospital*†.....Gen	City	Indus	...	...	...	...	...	...
Quincy, 7,593—Perry Co.	Indep	Indus	50	17	5	Yes	48	591
Marshall Browning Hospital*†.....Gen	Indep	Indus	...	...	...	...	...	...
Wright, 2,534—Livingston Co.	VetAd	Indus	225	182	...	No	...	1,509
Veterans Admin. Hospital*†.....Gen	VetAd	Indus	...	...	...	...	...	...
East Moline, 10,107—Rock Island Co.	State	Indus	1,940	1,812	...	No	...	386
East Moline State Hospital*†.....N&M	State	Indus	...	...	...	...	...	...

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Outpatient Department	Total Births	Patients Admitted
East St. Louis, 74,347—St. Clair Co.								
Christian Welfare Hospital†.....Gen	Church	Church	44	33	6	No	86	834
St. Mary's Hospital*†.....Gen	Church	Church	260	129	35	No	377	3,580
Edwardsville, 6,235—Madison Co.								
Madison County Sanitarium†.....TB	County	County	85	53	...	Yes	...	104
Effingham, 4,978—Effingham Co.								
St. Anthony's Hospital†.....Gen	Church	Church	70	25	8	Yes	40	750
Eldorado, 4,482—Saline Co.								
Eldorado Hospital.....Gen	Indiv	Indiv	14	7	2	No	10	235
Elgin, 35,929—Kane Co.								
Elgin State Hospital.....N&M	State	State	3,777	3,545	...	Yes	...	1,233
Resthaven Sanitarium.....N&M	Indiv	Indiv	70	53	...	No	...	80
St. Joseph's Hospital.....Gen	Church	Church	125	53	20	No	347	1,837
Sherman Hospital†.....Gen	Indep	Indep	110	42	20	Yes	307	2,212
Elmhurst, 14,055—DuPage Co.								
Elmhurst Hospital†.....Gen	Indep	Indep	77	41	18	No	313	1,707
Evanston, 63,338—Cook Co.								
Evanston Community Hospital (col.).....Gen	Indep	Indep	22	12	6	Yes	60	385
Evanston Hospital*†.....Gen	Indep	Indep	235	181	36	Yes	853	6,117
St. Francis Hospital*†.....Gen	Church	Church	320	125	40	No	998	6,615
Evergreen Park, 1,594—Cook Co.								
Little Company of Mary Hospital.....Gen	Church	Church	102	49	48	No	331	937
Flora, 4,393—Clay Co.								
Flora Hospital.....Gen	Indiv	Indiv	15	New	4	No	....	....
Ft. Sheridan, 602—Lake Co.								
Station Hospital†.....Gen	Army	Army	116	71	3	Yes	39	1,849
Freeport, 2,2045—Stephenson Co.								
Evangelical Deaconess Hosp.*†.....Gen	Church	Church	86	49	16	Yes	172	1,639
St. Francis Hospital*†.....Gen	Church	Church	122	55	16	No	276	1,992
Galesburg, 28,830—Knox Co.								
Galesburg Cottage Hospital†.....Gen	Indep	Indep	82	36	18	Yes	167	1,027
St. Mary's Hospital.....Gen	Church	Church	120	53	18	No	265	2,149
Geneseo, 3,406—Henry Co.								
J. C. Hammond City Hospital.....Gen	City	City	14	2	5	No	31	444
Geneva, 4,607—Kane Co.								
Community Hospital†.....Gen	Indep	Indep	67	27	18	No	214	1,019
Gilman, 1,620—Iroquois Co.								
Gilman Community Hospital.....Gen	Indep	Indep	12	5	3	No	41	237
Granite City, 25,130—Madison Co.								
St. Elizabeth's Hospital†.....Gen	Church	Church	103	60	22	No	143	1,656
Great Lakes—Lake Co.								
U. S. Naval Hospital*†.....Gen	Navy	Navy	1,031	675	...	No	...	5,005
Harrisburg, 11,625—Saline Co.								
Harrisburg Hospital.....Gen	Indep	Indep	30	9	1	Yes	....	340
Lightner Hospital.....Gen	Indiv	Indiv	35	25	9	No	48	900
Harvard, 2,988—McHenry Co.								
Harvard Community Hospital†.....Gen	Part	Part	21	10	5	No	45	210
Harvey, 16,374—Cook Co.								
Ingalls Memorial Hospital.....Gen	Indep	Indep	95	30	25	Yes	347	1,518
Herrin, 9,703—Williamson Co.								
Herrin Hospital.....Gen	Part	Part	35	17	5	No	53	608
Highland, 3,319—Madison Co.								
St. Joseph's Hospital.....Gen	Church	Church	65	52	6	No	69	993
Highland Park, 12,203—Lake Co.								
Highland Park Hospital.....Gen	Indep	Indep	53	28	17	No	204	998
Hillsboro, 4,435—Montgomery Co.								
Hillshoro Hospital†.....Gen	Indep	Indep	28	15	5	No	50	407
Hines—Cook Co.								
Veterans Admin. Hospital†.....Gen	VetAd	VetAd	1,655	1,134	...	Yes	....	5,937
Hinsdale, 6,923—Du Page Co.								
Hinsdale Sanit. & Hospital.....Gen	Indep	Indep	134	65	13	No	222	1,871
Jacksonville, 17,747—Morgan Co.								
Jacksonville State Hospital.....N&M	State	State	3,000	3,154	...	No	...	553
Norbury Sanatorium.....N&M	Indiv	Indiv	120	73	...	No	...	163
Oakland Sanatorium.....TB	County	County	35	37	...	No	...	66
Our Savior's Hospital†.....Gen	Church	Church	76	52	15	No	124	1,397
Passavant Memorial Hospital†.....Gen	Church	Church	72	39	14	Yes	93	1,141
Jerseyville, 4,309—Jersey Co.								
Jerseyville Hospital.....Gen	Indiv	Indiv	15	4	5	Yes	17	137
Joliet, 42,993—Will Co.								
St. Joseph's Hospital*†.....Gen	Church	Church	192	151	40	Yes	682	4,355
Silver Cross Hospital†.....Gen	Indep	Indep	133	72	17	Yes	362	2,535
Will County Tuber. Sanit.†.....TB	County	County	100	59	...	No	....	78
Kankakee, 20,620—Kankakee Co.								
Kankakee State Hospital.....N&M	State	State	4,000	3,939	...	No	...	868
St. Mary's Hospital.....Gen	Church	Church	145	50	12	No	139	1,946
Kenilworth, 2,501—Cook Co.								
Kenilworth Sanitarium.....N&M	Indiv	Indiv	30	25	...	No	....	15
Kewanee, 17,033—Henry Co.								
Kewanee Public Hospital.....Gen	Indep	Indep	48	27	12	Yes	112	796
St. Francis Hospital.....Gen	Church	Church	56	30	9	Yes	88	729
La Harpe, 1,175—Hancock Co.								
Davies Memorial Hospital.....Gen	Indep	Indep	14	4	4	No	18	132
Lake Forest, 6,554—Lake Co.								
Alice Home Hospital.....Gen	Indep	Indep	42	22	8	No	151	763
Lake Forest Hospital (Contagious Dept. of Alice Home Hospital)								
La Salle, 13,149—La Salle Co.								
St. Mary's Hospital.....Gen	Church	Church	88	29	12	Yes	237	1,861
Libertyville, 3,791—Lake Co.								
Concell Memorial Hospital.....Gen	Indep	Indep	25	9	6	No	53	354
Lincoln, 12,855—Logan Co.								
Evangelical Deaconess Hosp.*†.....Gen	Church	Church	52	36	8	No	90	1,029
St. Clara's Hospital.....Gen	Church	Church	65	31	6	No	62	1,124
Litchfield, 6,612—Montgomery Co.								
St. Francis's Hospital.....Gen	Church	Church	120	63	8	No	100	2,705



Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Outpatient Department	Total Births	Patients Admitted
Mackinaw, 760—Tazewell Co.	TB	County	45	43	...	No	...	63
Oak Knoll Sanatorium.....	Gen	Indep	40	25	5	No	77	700
Macomb, 8,509—McDonough Co.	Gen	Church	75	45	6	No	113	1,140
Marietta Phelps Hospital††.....	Gen	Indep	40	25	5	No	77	700
St. Francis' Hospital†.....	Gen	Church	75	45	6	No	113	1,140
Manteno, 1,149—Kankakee Co.	N&M	State	863	523	...	No	...	...
Manteno State Hospital.....	N&M	State	863	523	...	No	...	...
Mattoon, 14,631—Coles Co.	Gen	Church	43	26	10	No	82	1,095
Memorial Methodist Hospital†.....	Gen	Church	43	26	10	No	82	1,095
Melrose Park, 10,741—Cook Co.	Gen	Indep	85	28	16	No	265	1,158
Westlake Hospital†.....	Gen	Indep	85	28	16	No	265	1,158
Mendota, 4,009—La Salle Co.	Gen	Indiv	20	6	3	No	17	316
Harris Hospital.....	Gen	Indiv	20	6	3	No	17	316
Milledgeville, 807—Carroll Co.	Gen	Indiv	10	3	4	No	19	1,030
General Hospital.....	Gen	Indiv	10	3	4	No	19	1,030
Minonk, 1,910—Woodford Co.	TB	County	12	10	...	No	...	14
Woodford County Tuberculosis Sanatorium.....	TB	County	12	10	...	No	...	14
Moline, 32,236—Rock Island Co.	Gen	Church	124	50	36	No	420	1,594
Lutheran Hospital†.....	Gen	Church	124	50	36	No	420	1,594
Moline Public Hospital†.....	Gen	City	111	60	22	No	995	2,240
Monmouth, 8,666—Warren Co.	Gen	City	35	30	11	No	129	782
Monmouth Hospital.....	Gen	City	35	30	11	No	129	782
Morris, 5,568—Grundy Co.	Gen	City	35	15	10	No	100	435
Morris Hospital.....	Gen	City	35	15	10	No	100	435
Mt Vernon, 12,375—Jefferson Co.	Gen	Indiv	30	20	4	No	...	...
Mt. Vernon Hospital.....	Gen	Indiv	30	20	4	No	...	...
Moweaqua, 1,478—Shelby Co.	Gen	Indiv	25	13	8	No	16	93
Moweaqua Hospital.....	Gen	Indiv	25	13	8	No	16	93
Murphysboro, 8,182—Jackson Co.	Gen	Church	50	25	4	No	25	921
St. Andrew's Hospital†.....	Gen	Church	50	25	4	No	25	921
Naperville, 5,118—Du Page Co.	TB	Indep	85	71	...	No	...	133
Edward Sanatorium.....	TB	Indep	85	71	...	No	...	133
Normal, 6,768—McLean Co.	Gen	Church	79	55	15	No	189	2,569
Brokaw Hospital†.....	Gen	Church	79	55	15	No	189	2,569
Fairview Sanatorium.....	TB	County	50	44	...	Yes	...	56
North Chicago, 8,466—Lake Co.	N&M	Indiv	1,135	826	...	No	...	217
Veterans Admin. Hospital.....	N&M	Indiv	1,135	826	...	No	...	217
Oak Forest, 50—Cook Co.	Gen	County	1,054	1,016	...	No	...	2,771
Cook County Infirmary†.....	Gen	County	1,054	1,016	...	No	...	2,771
Cook County Prison Hospital†.....	TB	County	632	579	2	No	...	980
Oak Park, 63,982—Cook Co.	Gen	Church	135	96	40	Yes	795	8,365
Oak Park Hospital*.....	Gen	Church	135	96	40	Yes	795	8,365
West Suburban Hospital†.....	Gen	Indep	327	188	100	Yes	1,781	7,964
Olney, 6,140—Richard Co.	Gen	Indep	68	50	7	Yes	70	1,786
Olney Hospital†.....	Gen	Indep	68	50	7	Yes	70	1,786
Oregon, 2,376—Ogle Co.	Gen	Indiv	10	5	6	No	30	126
Oregon Hospital.....	Gen	Indiv	10	5	6	No	30	126
Ottawa, 15,094—La Salle Co.	TB	County	60	44	...	No	...	74
Highland.....	TB	County	60	44	...	No	...	74
Illinois Valley Hospital.....	Gen	Indiv	22	9	6	No	25	327
Ottawa Tuberculosis Sanatorium TB	Gen	Indiv	51	36	...	No	...	79
Ryburn Memorial Hospital.....	TB	City	63	33	12	No	235	1,452
Pana, 5,835—Christian Co.	Gen	Church	40	24	10	No	70	729
Huber Memorial Hospital†.....	Gen	Church	40	24	10	No	70	729
Little Sanatorium.....	Gen	Indiv	23	15	4	No	34	400
Paris, 8,781—Edgar Co.	Gen	Indiv	35	27	10	No	28	825
Paris Hospital†.....	Gen	Indiv	35	27	10	No	28	825
Pekin, 16,129—Tazewell Co.	Gen	Indep	25	22	7	No	...	...
Pekin Public Hospital.....	Gen	Indep	25	22	7	No	...	...
Peoria, 104,969—Peoria Co.	Gen	Indep	100	61	18	No	204	2,276
John C. Proctor Hospital.....	Gen	Indep	100	61	18	No	204	2,276
Methodist Hospital†.....	Gen	Church	187	116	23	No	466	3,320
Michell Farm.....	N&M	Indiv	25	16	...	No	...	41
Peoria Municipal Tuberculosis Sanatorium.....	TB	City	92	88	...	Yes	...	158
Peoria Sanatorium.....	N&M	Indiv	25	14	...	No	...	51
Peoria State Hospital†.....	N&M	State	2,800	2,656	...	No	...	482
St. Francis Hospital†.....	Gen	Church	300	174	30	No	665	6,330
Peru, 9,121—La Salle Co.	Gen	Indep	40	38	12	No	135	1,546
People's Hospital.....	Gen	Indep	40	38	12	No	135	1,546
Pineknayville, 3,046—Perry Co.	Gen	Indiv	20	8	3	Yes	...	...
Hiller Hospital.....	Gen	Indiv	20	8	3	Yes	...	...
Pontiac, 8,272—Livingston Co.	TB	County	35	30	...	No	...	33
Livingston County Sanatorium.....	TB	County	35	30	...	No	...	33
St. James' Hospital.....	Gen	Church	42	20	12	No	...	...
Princeton, 4,762—Bureau Co.	Gen	City	40	21	10	No	83	762
Julia Rackley Perry Memorial Hospital.....	Gen	City	40	21	10	No	83	762
Quincy, 39,241—Adams Co.	TB	County	50	45	...	Yes	...	47
Adams County Tuberculosis Sanatorium.....	TB	County	50	45	...	Yes	...	47
Blessing Hospital†.....	Gen	Indep	130	65	22	No	348	2,269
St. Mary's Hospital*.....	Gen	Church	191	140	25	No	340	2,374
Rantoul, 1,555—Champaign Co.	Gen	Army	50	21	...	Yes	...	382
Station Hospital.....	Gen	Army	50	21	...	Yes	...	382
Red Bud, 1,203—Randolph Co.	Gen	Church	22	15	2	No	8	252
St. Clement's Hospital.....	Gen	Church	22	15	2	No	8	252
Robinson, 3,668—Crawford Co.	Gen	Part	18	5	5	No	24	145
Robinson Hospital.....	Gen	Part	18	5	5	No	24	145
Rockford, 85,864—Winnebago Co.	Gen	Indep	92	55	18	No	317	2,252
Rockford Hospital.....	Gen	Indep	92	55	18	No	317	2,252
Rockford Municipal Sanit.....	TB	City	118	112	...	Yes	...	774
St. Anthony's Hospital.....	Gen	Church	147	93	33	Yes	774	3,723
Swedish-American Hospital.....	Gen	Indep	80	51	12	No	350	1,494
Wilgus Sanatorium.....	N&M	Indiv	35	31	...	No	...	151
Winnebago County Hospital.....	Gen	County	97	22	6	Yes	90	77
Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Outpatient Department	Total Births	Patients Admitted
Rock Island, 37,953—Rock Island Co.	TB	County	22	23	...	Yes	...	2,800
Rock Island County Tuberculosis Sanatorium.....	TB	County	22	23	...	Yes	...	2,800
St. Anthony's Hospital†.....	Gen	Church	150	75	18	Yes	212	2,800
Rosiclare, 1,794—Hardin Co.	Gen	Indiv	15	3	2	No	12	...
Rosiclare Hospital.....	Gen	Indiv	15	3	2	No	12	...
Rushville, 2,383—Schuyler Co.	Gen	Indiv	20	8	3	No	26	...
Culbertson Hospital.....	Gen	Indiv	20	8	3	No	26	...
St. Charles, 5,377—Kane Co.	Gen	City	16	7	6	Yes	45	...
St. Charles City Hospital.....	Gen	City	16	7	6	Yes	45	...
Sandwich, 2,611—De Kalb Co.	Gen	Indep	26	18	10	No	75	...
Horatio N. Woodward Memorial Hospital.....	Gen	Indep	26	18	10	No	75	...
Savanna, 5,036—Carroll Co.	Gen	City	15	5	5	No	43	...
Savanna City Hospital.....	Gen	City	15	5	5	No	43	...
Shelbyville, 3,491—Shelby Co.	Gen	County	20	9	5	No	26	...
Shelby County Memorial Hospital.....	Gen	County	20	9	5	No	26	...
Springfield, 71,864—Sangamon Co.	TB	Indep	75	55	...	No	...	774
Palmer Tuberculosis Sanatorium.....	TB	Indep	75	55	...	No	...	774
St. John's Hospital.....	Gen	Church	540	422	60	Yes	774	10,400
St. John's Sanitarium.....	TB	Church	300	250	...	No	...	...
Springfield Hospital.....	Gen	Church	85	60	14	No	201	1,900
Spring Valley, 5,270—Bureau Co.	Gen	Church	68	43	7	Yes	139	1,300
St. Margaret's Hospital.....	Gen	Church	68	43	7	Yes	139	1,300
Sterling, 10,012—Whiteside Co.	Gen	City	51	31	12	Yes	251	1,100
Public Hospital.....	Gen	City	51	31	12	Yes	251	1,100
Streator, 14,723—La Salle Co.	Gen	Church	112	65	13	No	220	2,300
St. Mary's Hospital.....	Gen	Church	112	65	13	No	220	2,300
Sublette, 261—Lee Co.	Mater	Indiv	15	5	10	No	126	1,400
Angeart Maternity Hospital.....	Mater	Indiv	15	5	10	No	126	1,400
Sycamore, 4,021—De Kalb Co.	Gen	City	20	9	10	No	...	...
Sycamore Municipal Hospital.....	Gen	City	20	9	10	No	...	...
Taylorville, 7,316—Christian Co.	Gen	Church	55	29	11	No	131	1,400
St. Vincent's Hospital.....	Gen	Church	55	29	11	No	131	1,400
Urbana, 13,030—Champaign Co.	Gen	Indep	40	New	14	No	...	...
Carle Memorial Hospital.....	Gen	Indep	40	New	14	No	...	...
Champaign County Hospital.....	Gen	County	55	51	12	No	62	...
Mercy Hospital.....	Gen	Church	38	35	12	No	151	1,400
The Outlook.....	TB	County	48	35	...	No	...	...
Vandalia, 4,342—Fayette Co.	Gen	Indiv	20	15	4	No	35	...
Mark Greer Hospital.....	Gen	Indiv	20	15	4	No	35	...
Waterman, 520—De Kalb Co.	Gen	Indiv	30	14	7	No	67	...
East Side Hospital.....	Gen	Indiv	30	14	7	No	67	...
Watseka, 3,144—Iroquois Co.	Gen	County	30	17	8	No	98	...
Iroquois Hospital.....	Gen	County	30	17	8	No	98	...
Waukegan, 33,499—Lake Co.	Gen	County	76	63	12	Yes	69	...
Lake County General Hosp. ....	Gen	County	76	63	12	Yes	69	...
St. Therese's Hospital.....	Gen	Church	180	50	16	No	270	1,100
Victory Memorial Hospital.....	Gen	Indep	76	42	14	No	255	1,100
White Hall, 2,928—Greene Co.	Gen	Indep	12	7	5	No	59	...
White Hall Hospital.....	Gen	Indep	12	7	5	No	59	...
Winfield, 445—Du Page Co.	TB	Indep	120	96	...	Yes	...	...
Winfield Sanatorium.....	TB	Indep	120	96	...	Yes	...	...
Zace Sanatorium.....	TB	Indep	50	35	...	No	...	...
Woodstock, 5,471—McHenry Co.	Gen	Indep	20	9	7	No	74	...
Woodstock Hospital.....	Gen	Indep	20	9	7	No	74	...
Zeigler, 3,816—Franklin Co.	Gen	Indus	16	3	2	No	12	...
Zeigler Hospital.....	Gen	Indus	16	3	2	No	12	...
Related Institutions	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basinets	Outpatient Department	Total Births	Patients Admitted
Batavia, 5,045—Kane Co.	Inst	County	50	28	...	No	...	...
Kane County Home Hospital.....	Inst	County	50	28	...	No	...	...
Belleville, 28,425—St. Clair Co.	Inst-Iso	County	100	70	...	No	14	1,100
St. Clair County Home and Isolation Hospital.....	Inst-Iso	County	100	70	...	No	14	1,100
Chicago, 3,376,438—Cook Co.	Inst	Church	39	5	...	No	...	...
Angel Guardian Orphanage.....	Inst	Church	39	5	...	No	...	...
Beaumont Private Nursing Home.....	Gen	Indiv	26	13	...	No	...	...
Beulah Home and Maternity Hospital.....	Mater	Indep	40	15	24	No	48	...
Chicago Home for Conv. Women and Children.....	Conv	Indep	56	48	...	No	...	...
Chicago Home for Incur.....	Incur	Indep	265	259	...	No	...	...
Chicago Home for Friendless.....	Inst	Church	35	15	...	No	...	...
Chicago Nursery and Half Orphan Asylum.....	Inst	Indep	17	14	...	No	...	...
Church Home for Aged Persons.....	Inst	Church	9	6	...	No	...	...
Home for Aged Jews.....	Inst	Indep	10	...	...	No	...	...
House of Correction and Police Emergency Hospital.....	Inst	City	75	35	2	No	...	1,100
Isolation Hospital.....	Iso	City	35	7	...	No	...	...
Lawrence Hall.....	Inst	Church	21	3	...	No	...	...
Marks Nathan Jewish Orphan Home.....	Inst	Indep	22	8	...	No	...	...
Methodist Episcopal Old People's Home.....	Inst	Church	25	19	...	No	...	...
Myran Sanatorium.....	N&M	Indiv	20	10				

## Correspondence

## BE ON GUARD FOR AN IMPOSTER

Illinois Medical Journal.

*To the Editor:* About May 1 my office was entered by a morphine addict who took among other things my Army Discharge Papers, Army Compensation Certificate and a Pass Book on the First National Bank of this City.

Since that time numerous forged checks have arrived at the Bank from points in Indiana and in the last few days one from Kankakee and East St. Louis, Illinois. I have several letters from Physicians who received forged checks and in all cases this party posed as a World War Veteran who had purchased a chicken farm in that vicinity and used my credentials (Discharge Papers and Compensation Certificate) for identification. The checks have ranged all the way from \$90 to \$2 and have totaled about \$400.

I have written all County Health Officers in Indiana to notify the Physicians to be on guard and would be very much pleased if you would give this space in your Journal.

In case this man is apprehended notify the Sheriff of Jackson County, Murphysboro, Illinois.

JOHN HRABIK, M. D.

1116½ Walnut St., Murphysboro, Illinois.

NO EPIDEMIC OF INFANTILE PARALYSIS  
THIS YEAR PREDICTS SURGEON GENERAL

There will be no epidemic of infantile paralysis in this country this year, according to Hugh S. Cumming, Surgeon General and Director, U. S. Public Health Service. Dr. Cumming, writing in a forthcoming issue of "The Parents' Magazine," says, "Fortunately assurances can be given, in view of our previous experience with poliomyelitis (infantile paralysis), that widespread epidemic of this disease is practically out of the question in 1932. It was more prevalent in the United States in 1931 than in any year since the record-breaking epidemic of 1916 and one intense outbreak does not follow another within a year in the same community. It is to be remembered, however, that the disease occurs every year to some extent, and it is especially to be remembered that most muscles affected tend to recover entirely if they are kept from being stretched from the start, and later, after all tenderness has gone, if they receive carefully directed and graduated exercises, with proper rest, still avoiding stretching."

## BOOBS

Boobs are people, ruined by their faith in promises, who vote for the candidate who makes the nicest ones.—Robert Quillen.

Hospitals and Sanatoriums	Type of Service	Control	Beds, Rated Capacity	Average Patients	Basins	Outpatient Department	Total Births	Patients Admitted
<b>Related Institutions</b>								
Cicero, 66,602—Cook Co.								
Western Electric Co. Hospital	Indus	Indus	13	....	....	Yes	....	....
Danville, 36,765—Vermilion Co.								
Veterans Admin. Home	Inst	VetAd	560	508	....	No	....	2,580
Dixon, 9,908—Lee Co.								
Dixon State Hospital	MenDef	State	2,300	2,877	....	No	....	471
Eldorado, 4,482—Saline Co.								
Ferrell Hospital	Gen	Indiv	12	5	1	No	....	153
Evanston, 63,338—Cook Co.								
Cradle Society	Chil	Indep	36	18	....	No	....	320
Grove House for Conv.	Conv	Indep	35	19	....	No	....	213
Fairbury, 2,310—Livingston Co.								
Fairbury Hospital	Gen	City	8	3	5	No	25	192
Forest Park, 14,555—Cook Co.								
German Old People's Home	Inst	Indep	35	35	....	No	....	....
Geneva, 4,607—Kane Co.								
State Training School for Girls	Inst	State	36	34	....	Yes	....	300
Godfrey, 201—Madison Co.								
Beverly Farm	MenDef	Indep	80	60	....	Yes	....	8
Henry, 1,658—Marshall Co.								
Drs. Coggeshall & Dysart Hos- pital	Gen	Part	8	4	3	No	50	....
Hinsdale, 6,923—Du Page Co.								
West Suburban Home for Girls	Mater	Indep	22	....	25	....	....	....
Jacksonville, 17,747—Morgan Co.								
Illinois School for Blind	Inst	State	18	10	....	No	....	195
Illinois School for Deaf	Inst	State	40	24	....	No	....	1,066
Joliet, 42,993—Will Co.								
Illinois State Penit. Hospital	Inst	State	50	20	....	Yes	....	....
Knoxville, 1,867—Knox Co.								
Knox County Home & Hospital	Gen	County	18	7	....	No	....	....
La Grange, 10,103—Cook Co.								
Illinois Masonic Orphans' Home	Inst	Frat	28	4	....	No	....	210
Lincoln, 12,855—Logan Co.								
Lincoln State School and Col- ony	MenDef	State	2,927	2,752	....	No	....	434
Mattoon, 14,631—Coles Co.								
Independent Order Odd Fellows								
Old Folks Home Hospital	Inst	Frat	56	25	....	No	....	....
McLeansboro, 2,162—Hamilton Co.								
McLeansboro Hospital	Gen	Indiv	10	2	2	No	....	25
Madison, 22—Randolph Co.								
Chester State Hospital	N&M	State	465	380	....	No	....	....
Southern Illinois Penitentiary								
Hospital	Inst	State	39	22	....	Yes	....	370
Metropolis, 5,573—Massac Co.								
Fisher Hospital	Gen	Indiv	10	2	1	No	2	52
Mooseheart, 1,519—Kane Co.								
Mooseheart Hospital	Chil	Frat	60	40	....	Yes	....	3,255
Mt. Prospect, 1,225—Cook Co.								
Mt. Prospect General Hospital	Gen	Indep	20	5	4	....	20	200
Normal, 6,768—McLean Co.								
Soldiers' and Sailors' Children's School	Inst	State	75	15	....	No	....	....
Paxton, 2,892—Ford Co.								
Paxton Community Hospital	Gen	City	24	4	3	Yes	17	286
Peoria, 104,969—Peoria Co.								
Peoria Isolation Hospital	Iso	City	50	2	....	No	....	32
Pontiac, 8,272—Livingston Co.								
Illinois State Reformatory	Inst	State	32	13	....	No	....	1,085
Quincy, 39,241—Adams Co.								
Illinois Soldiers' and Sailors Home and Hospital	Inst	State	200	120	....	Yes	....	600
St. Charles, 5,377—Kane Co.								
St. Charles School for Boys	Inst	State	30	18	....	No	....	1,560
Savanna, 5,086—Carroll Co.								
Station Hospital	Gen	Army	10	3	....	No	....	120
Sullivan, 2,339—Moultrie Co.								
Illinois Masonic Home	Inst	Frat	91	80	....	No	....	175
Toledo, 733—Cumberland Co.								
Toledo Sanitarium	Gen	Indiv	5	2	1	No	2	69
Urbana, 13,030—Champaign Co.								
McKinley University Hospital	Inst	State	85	40	....	No	....	1,349
Vedron, 202—La Salle Co.								
St. Joseph's Health Resort	Conv	Church	55	36	....	Yes	....	763
Vest Chicago, 3,477—Du Page Co.								
Country Home for Convalescent Children	Conv	Indep	120	80	....	No	....	67
Wheaton, 7,258—Du Page Co.								
Howe Home	N&M	Part	10	7	....	No	....	....
Mary E. Pogue Sanitarium	N&M	Indiv	50	41	....	No	....	6
Wheaton Health Resort	Gen	Part	30	11	12	No	35	108
Wheeling, 467—Cok Co.								
Wheeling Hospital	Gen	Indiv	9	1	5	No	24	45
Vinnetka, 12,166—Cook Co.								
North Shore Health Resort	Conv	Indep	75	60	....	No	....	386
Woodstock, 5,471—McHenry Co.								
Dr. Weirick's Sanitarium	Conv	Indiv	12	8	....	No	....	47

## Summary for Illinois:

	Number	Beds	Average Patients	Patients Admitted
Hospitals and Sanatoriums	282	60,261	46,399	536,180
Related Institutions	62	9,369	8,019	22,987
Totals	344	69,630	54,418	559,167
Refused registration	30	1,026		



## Original Articles

### PHYSIOLOGIC CONSIDERATIONS IN ABDOMINAL SURGERY\*

JABEZ N. JACKSON, M. D.  
KANSAS CITY, MO.

The evolution of medicine and surgery has been by epochs, says Robert T. Morris. The first was that of mysticism and empiricism. And it was a long one, lasting for many centuries. When Adam in the Garden of Eden chose to eat the apple from the tree of knowledge he became man. Giving up the bliss of ignorance and irresponsibility he chose to know and went forth into a world of responsibilities and troubles. Thus beginning without knowledge his ideas must, by necessity, be vague and mystical. Spirits, Gods of good and evil were held responsible for most of the events of life. Progress must come alone through the undeveloped sense of observation. Few and scattered peoples, different tongues and environments, scant opportunity for exchange of ideas—no wonder knowledge was slow in growth. The greatest wonder we find in history is the real accomplishment of those early days.

Several hundred years after the birth of Christ Vesalius first had the courage to defy superstition and make a study of the anatomy of man and thereby ushered in the second epoch, the Anatomic epoch, the first turn toward the scientific trend in thought. We now knew at least the gross structure of the human body, something at least definite. This epoch had a vast influence in the development of surgery, and was the dominant influence even up to within a generation. Precise knowledge of anatomy was the first essential to the one who aspired to surgery. In the earlier days before anesthesia was known obviously what little could be done in surgery must be done rapidly and accurately, and one must know exactly where he was and where he was going. The training of the surgeon, even up to the present generation, was though the dissecting room as demonstrator of anatomy to the lecture room as professor of anatomy, then into surgical anatomy and finally into surgery. Perhaps many of you here have traveled that route. It was mine. It tended to pro-

duce accurate surgery, with oftentimes brilliant, spectacular operative manipulations.

When Pasteur discovered that in the world about us were millions of small cellular organisms called germs and that these were the essential cause of most diseases and all surgical infections we were ushered into the third epoch, that of bacteriology and pathology. Now we knew for the first time the real cause and nature of disease and science was born. Its influence in medicine, fascinating as the subject, does not concern us here.

Lord Lister in England working on Pasteur's discoveries figured that if these organisms could be kept out of wounds, infections would disappear. Using those chemical substances which have proved efficient in destroying organisms in the test tube, he introduced antiseptics and thereby revolutionized surgery.

Whereas every surgical attempt heretofore had been an invitation to infection, sepsis, gangrene and death, henceforth they could be entered upon with anticipation of success. This immunity opened up to the surgeon fields hitherto practically unknown. The abdomen became henceforth a rich field for exploration, and the developments therefrom added much not only to relief of existent troubles but further knowledge of the incipient pathology.

Thus it was only in 1884 that Fitz of Boston recognized the appendix as the primary seat of infection whence many abdominal disasters had originated and with the ensuing knowledge of early diagnosis and removal of the limited lesion how many lives have been saved, how many complications avoided. The bacteriologic origin of disease gave us an entirely new conception of pathology and opened a new field for study. The modern surgeon, therefore, has been compelled to know well the pathology of disease, its origin, development and final termination. Unfortunately, much of this knowledge could not be carried to the operating table, but has required the reference to the pathological laboratory after removal. Close clinical observation has, however, made one quite capable of forming fairly accurate conclusions from gross pathology.

This present generation has, therefore, been the Golden Age in surgery. Many of you can remember when the surgeon with a record of twenty-five cases of laparotomy was considered to have had quite a wide experience. Now statistics

\*Oration in Surgery delivered at 82nd Annual Meeting of Illinois State Medical Society at Springfield, Ill., May 18, 1932.



are largely ignored unless they run into the thousands.

Hence, with an accurate knowledge of anatomy to guide his knife, to ligate vessels before divisions and to avoid dangerous areas, with a knowledge of aseptic technique to prevent infection or to limit its spread where already present, the modern surgeon has accomplished miracles. We no longer hear often of shock, and seldom of peritonitis in clean surgery.

And yet too often we have heard the expression, "a beautiful operation, and yet the patient died." On the other hand we have sometimes seen a crude operation poorly done without knowledge of either anatomy or pathology and yet the patient recovered. I fancy the best of surgeons today have deaths when they find difficulty in assigning a diagnostic cause. Herein is presented a problem worthy of our closest study.

When one takes a cursory look into the abdomen, one observes first, over thirty odd feet of extensively coiled tube, the gastrointestinal tract. Into this tract from above is poured several times daily all sorts of chemical products in the various forms of foods. These chemical substances are, in turn, acted upon by various other chemical secretions of the tube called digestants, enzymes, etc. Likewise, in the various segments of this gut are found millions upon millions of bacteria which likewise enter into the various chemical reactions. In other words, we have here a very long and tortuous tube within which the most extensive and complicated chemical reactions are continually going on. The purpose obviously is good. To transform these foods into a condition in which they can be appropriated and utilized by the tissues of the body to build cells and to repair waste. But we must recognize that along with this complex chemical and bacteriologic activity there are inevitably formed many other by-products which, instead of being foods, are poisons.

On second observation of the abdomen we note the presence in the upper right quadrant of the largest organ in the human body, the liver. It is further important to know that every drop of blood from the intestinal tract goes through the portal vein to this liver. To the liver, therefore, must be carried all these digested foods and likewise all the poisonous by-products. Whatever the functions of the liver may be, with regard to transformation and utilization of foods,

we must now appreciate its relation to poisons. In other words, we must recognize the liver as the great filter interposed between this chemical retort and the general system. The liver must, therefore, be able to transform, neutralize or eliminate much poison. When the liver cells are fully able to accomplish this purpose adequately, the purified blood together with its food values is carried back to the vena cava and thence to the heart and finally to the entire system. If the liver is inefficient, on the other hand, poisons of all sorts are likewise distributed to the entire system, with injurious effects to every organ.

Now let us consider broadly what happens when the peritoneum is invaded by the surgeon's scalpel or by a perforation from within. Perhaps the first response is found in the arrest of intestinal peristalsis. This must evidently be the result of a reflex action through the abdominal ganglia. This is intended to be a protective measure to minimize the leakage and spread of intestinal contents in case of their injury and thereby protect that most extensive and sensitive structure we call the peritoneum. Now in the duration of this arrest of peristalsis we have the equivalent of an intestinal obstruction. Under perfectly normal conditions this physiologic arrest of peristalsis is of short duration. Sometimes the impression is more profound and the intestinal inactivity lasts for a much longer time. Under such circumstances there is an increased accumulation of poisons, particularly in the upper segment of the intestinal tract, and the liver thus receives an additional load of poison which it is called upon to handle. If we have an efficient, undamaged liver free from disease or its effects, all may be well. But suppose this liver has been long itself poisoned by continuous infections of one sort or another probably of systemic origin with secondary liver involvement (as in chronic cholecystitis). The liver is now unable to respond and general systemic poisoning ensues. This poison, acting on the abdominal ganglionic system, paralyzes its functional activity and intestinal paresis, adynamic ileus, acute gastric dilatation and similar gastrointestinal phenomena ensue. Other organs of elimination try to get rid of them. But these organs of elimination were not made to handle this chemical type of poison which, therefore, acts as an irritant on them. The kidney, for instance, refuses or is unable to handle these poisons and an acute

nephritis with albumin, casts and finally suppression occurs. When, under the circumstances, the patient dies, we write down "acute nephritis"; oftentimes attribute it to the ether anesthesia. We now know that even the lung attempts other elimination beyond its pure function in oxygen exchange, as has been demonstrated in its attempt to eliminate dyes. Now these poisons resultant upon liver failure are carried to the lung with the same irritant effects and an ensuing pneumonia of some sort, and again we often blame the ether. Other excretory organs are likewise affected and we have a dry skin and dry tongue and the patient finally dies a toxic death.

These hastily sketched sequences are sufficient to draw attention to the physiologic importance of liver function and thereby as an illustration usher us into the final era, the physiologic.

The future progress in surgery therefore must rest upon our giving greater attention to the physiologic condition of our patient in general and in particular to the point we are endeavoring to stress here, the importance of normal liver physiology, for to it we believe we must attribute many phenomena which we have not heretofore appreciated.

Now to bring this down to concrete suggestion what does it mean? We have, grossly speaking, two classes of surgical work—1. That in chronic cases; 2. That in acute conditions.

In chronic cases obviously the time of operation is elective and the real surgeon therefore must be the one who selects the right time. And that right time is when the patient's physiology is at as near normal as is possible to attain. No longer can we be able to say "You have gallstones and if you go into the hospital today we will operate on you tomorrow morning." All chronic cases should, instead, be thoroughly studied in estimation of physiologic condition and fully prepared at whatever exense of time may be necessary.

Much thought has been given in recent years to the estimation of liver function. Most of this work has been based upon the ability of the liver to handle dyes. Everett Graham has demonstrated in his work that cases showing dye retention over a prolonged time have given poor results, whereas when time was taken and the patient prepared, his results improved. These observations are worth while, even though we are not clinically concerned with dyes but with

poisons. Since, however, we have up to the present time no method of estimation of the liver's capacity to handle poisons, the dye tests are all we have. In my judgment, the good clinician, once his attention is called to it, will, on careful study of his cases, be able to make a fair estimate. A patient constipated, with a murky skin, insufficient urinary output, a dry skin and tongue, and lusterless eyes, with sluggish response to normal stimulants to interest is obviously already toxic. Patients with jaundice are likewise toxic. Such patients should not be operated upon until their general condition is improved. Of course, in certain instances the jaundices may be due to obstruction which cannot clear entirely until a mechanical removal of obstruction is resorted to. But in most cases great improvement can be produced even here. In the absence of positive signs of impaired liver function it is safer to, at least, *assume* impaired function and to take sufficient time to raise it to its best height. The general physician should be educated to appreciate these factors, since most of the measures to be pursued can be as well carried out by the family physician in the patient's home, without the expense of the added time in the hospital.

Perhaps the most valuable aid to improved physiology is the administration of large quantities of water. The human cells, like an ordinary battery, require water to maintain electric action. Likewise, the toxins and poisons are diluted and increased elimination by the kidneys and skin facilitated. Glucose in some form or another is likewise valuable, as it most definitely is a food and stimulant to the liver cells. It may be administered in the form of glucose candy, as honey or as sweetened lemonade and orangeade. For the purpose of clearing the alimentary tract of its excess of poisons a good dose of castor oil may be administered. But when used it should be given three or more days before the contemplated operation so that the disturbed physiology of the intestinal tract may be entirely recovered from. In the period when one used to administer the oil the day before operation, I am sure we had more cases of so-called acute dilatation of the stomach and similar untoward intestinal disturbances than we have now. Immediately prior to operation enemas alone should suffice.

Now we have a few words to say concerning similar considerations in certain types of acute



surgical conditions. We shall limit these remarks to acute appendicitis and acute intestinal obstruction, for in each we have degrees of the same intestinal paresis and ensuant toxemia.

Statistics on the surgical results of operative procedure in acute appendicitis still show an unnecessarily high mortality. This, I believe, is due to the too general effort to standardize operative indications. "The time to operate is as soon as the diagnosis is made" is the usual formula. Speaking generally, this may be correct providing the diagnosis is made in the first 24 hours. It is rare for perforation to occur earlier. The threat of perforation, however, sometimes elicits profound reactions before the perforation actually takes place. Here again we have an anticipatory intestinal paresis, which sometimes passes to a marked abdominal distention within a few hours of the beginning of the infection, probably due to the intensity of the infection, sometimes to the sensitiveness of the individual's reactions. The effect of the toxic reaction may be manifested on other organs. The urine becomes scant, with the presence of albumin and casts. The skin becomes dry, likewise the tongue. Here we have the evidence of a profound primary reaction. When now the surgeon's knife is added to the problem, we know the entrance of the peritoneum itself must react with an arrest of intestinal peristalsis. And yet our clinical condition gives evidences of an already exaggerated presence of this condition. Under such circumstances our operation may only add to the gravity of the condition. Some years ago I operated upon one of my brilliant younger colleagues in surgery. He came to the hospital in the morning complaining of what he called a "simple belly ache." He consulted two of our leading internists, who at once made a diagnosis of acute appendicitis and called me in to see him. He was a rather stocky, fleshily built young bachelor, quite popular socially as well as professionally, who for a number of years had been "burning the candle at both ends." He had a surgical teaching assignment in which as an ambitious boy he was working hard. He was developing an excellent surgical practice to which he also lent his every energy. And every evening he was more or less a social lion, attending parties practically every night, eating all things at all hours and drinking correspondingly, with little or no physical exercise. His complexion

was already pale and pasty. When I examined him on the table, his abdomen was markedly distended, like a "poisoned pup" in the common saying. I rather demurred to operating under the conditions. "But," said his medical consultants, "suppose he has a perforation while you wait?" Such a possibility I could not positively deny and, lest the responsibility fall on my shoulders alone, I agreed to operate at once. The operation was so early that the pathology in the appendix was quite moderate. And yet his distention constantly increased, gastric lavage was ineffective, though at once resorted to, and in little over 24 hours he was dead. Now, had I had the nerve to stick to my own surgical judgment, I should have put him to bed, given him a gas enema, washed his stomach out every three hours and administered fluids by hypodermoclysis. I firmly believe he would be alive today and an ornament to our profession. In simple words, this case presented evidences of a marked physiologic upset which would probably have subsided and reached a stage where operation would either have been unnecessary or a condition obtained where operation would have been without risk. I have seen many cases act thus. We are therefore ready to operate upon any case of appendicitis, generally speaking, with a flat abdomen, a moist skin, normal urine. While in the reverse—a distended abdomen, a dry skin and tongue with scant urine and the presence of albumin—we defer operation. In simple words, we select the time of operation with reference to the physiologic condition of the patient rather than the hours of duration.

Now in acute intestinal obstruction we have largely the same problem, though in the end operation becomes imperative if physical condition can be at all rendered fit. Here, likewise, we have always had a flat instruction to operate as soon as diagnosis can be made. Unfortunately, most of these cases coming to us by reference do not reach us until the patient is almost moribund. Some years ago such a case was brought to me after almost a week of intestinal obstruction. The abdomen was profoundly distended, vomiting incessant, pulse almost imperceptible and extremely rapid, skin dry—practically moribund. I said to the doctor: "In my experience if I operated on this boy in his present condition he will promptly die, and it is my purpose to try other methods." I resorted to gastric



lavage every three hours with nothing permitted by stomach, gave him normal saline solution by hyperdermoclysis and proctoclysis in large amounts. In 24 hours his condition had so improved that I thought our diagnosis was wrong. He was crying for water, which was permitted, with a prompt recurrence of symptoms, requiring a return to gastric lavage, etc. In 24 hours his physiologic condition was again normal and operation was undertaken. He had an acute intussusception to such an extent that manipulation brought about a complete division of the gut, requiring resection and anastomosis, and yet the boy recovered. We no longer, therefore, operate upon cases of intestinal obstruction as an emergency, but attempt first to overcome the toxemia by repeated gastric lavage, replace lost fluid and overcome, thereby, dehydration by normal saline solution beneath skin, through rectal absorption or by direct intravenous administration, and on the whole, secure a more normal physiologic balance. Our results have been improved vastly.

In conclusion, permit me to say that the surgeon of the future must be not only a great anatomist and technician, not only a trained pathologist and master of art of asepsis, but as well a trained clinician of skilled judgment who follows no set rule of conduct but after completely studying his patient at the bedside chooses the right time—a physiologist.

#### X-RAY TREATMENT OF NON-MALIGNANT UTERINE HEMORRHAGE\*

MAXIMILIAN JOHN HUBENY, M. D.

CHICAGO

Medical statesmanship is much needed in dealing with any acute or destructive lesion in which signs and symptoms are not proportionate to the severity of the lurking pathological condition. In considering a remedy for any lesion, we must reckon with mortality, morbidity, post operative history, whether the remedy is accessible, whether it can be applied by a good number of the profession with facility and how favorable are the surroundings in which the patient is placed.

In order to simplify the remedy and standardize treatment, these factors which concern mortality, morbidity, etc., then become the concern of the medical or surgical statesman whose coun-

sel would be that a certain remedy meets most conditions. This is most true in dealing with uterine pathology.

In discussing the common lesions of the uterus we are concerned with the age of the uterus and its value to the particular patient; should the uterus be preserved even at certain risks, should conservative treatment be tried, what are the dangers of conservative treatment and what are those of radical measures? No wonder the student of the condition is afflicted with the burden of uncertainty.

With an armamentarium of surgery, radium or roentgen-therapy to choose from and to which endocrinology is now being added, it is apparent that much serious thought is necessary to select the proper remedy or remedies. No doubt as this subject receives more co-ordinated effort by physicians interested in these different modalities, a much more appropriate selection of remedial measures will be possible. In fact, why would it not be desirable to establish uterine clinics along similar lines of the tumor clinics?

Of all the conditions that yield to radiation therapy few are more satisfactorily dealt with than chronic uterine hemorrhages occurring in patients whose pelvic organs reveal no definite organic abnormalities.

Advances in our knowledge in this field should therefore interest the radiotherapist and gynecologist alike.

The condition is a very common one but so many names have been applied to it that the casual observer is led to believe that he is dealing with a large number of diseases. Some of the diagnostic terms encountered in the hospital records and the literature are "idiopathic, essential or functional menorrhagia," "uterine insufficiency," "endometrial hyperplasia," "fibrosis uteri," "subinvolution of the uterus," "uterine fibroids," "metropathia hemorrhagica," "glandular cystic hyperplasia," "ovarian hemorrhage," "endometritis glandularis," "adolescent menorrhagia," "menopause hemorrhage," etc.

Any intelligent study of the menstrual irregularities must of necessity begin with the normal mechanism of menstruation. While this mechanism is not as yet thoroughly understood, it has been reasonably established that the anterior lobe of the pituitary gland has some influence; much less is known of the relationship of the adrenal,

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pancreas, parathyroid, pineal body and the thymus gland to uterine function.

Certainly the thyroid, the automatic governor of many activities in the body that are not under direct control of the brain, also plays a part in its regulation. It is a well known fact that patients suffering from myxedema are likely to complain of menorrhagia, whereas the hyperthyroid case is more likely to have an amenorrhea.

In touching the field of endocrinology, the writer acknowledges that precise laboratory methods now make it possible to approach some of our disturbing problems in their incipency, long before they are ponderables, long before they have weight and dimension. Radiant energy is fascinating, so are the endocrines, the potentialities of both are just being comprehended.

It may seem strange that a roentgenologist should appear so enthused about endocrinology, but it is for the valid reason that the x-ray is being applied by roentgenologists over the pituitary gland for menstrual headaches and menstrual metropathies frequently in conjunction with roentgen-therapy of the ovaries and uterus. It has also been observed that in a case of metropathy which was treated by x-radiation, an incipient hyperthyroidism got well.

Many theories have been advanced to explain the occurrence of abnormal hemorrhages that occur in the absence of demonstrable pathology. Novak has covered some of the earlier literature. He states that *Scanzoni* in 1863 ascribed the bleeding to an infection of the myometrium, whereas *Olshausen* in 1875 felt it was due to a hypertrophy of the endometrium which he called "endometritis fungosa." *Theilhaber* described an insufficiency of the uterine muscle due to the replacement by fibrous tissue; *Anspach* found some abnormalities in the elastic tissue of the blood vessels of the uterine wall. *Pankow*, *Findlay* and *Reese* thought that arteriosclerosis of the uterine vessels played an important part in the causation of the hemorrhage. It is interesting to note that in 1882 *Brennecke* wrote of a condition which he called "endometritis ovarialis." He attributed the hemorrhage to some ovarian disorder. *Novak* and *Martzloff* describe the marked hypertrophy of the endometrium encountered in their cases and suggest abnormal ovarian function as an etiological factor.

Here we have a maze of causes of uterine hemorrhages without definite pathology.

Proceeding into the realm of definite metropathies, the fibromyomata are not frequently presented to the roentgen therapist.

From the standpoint of x-ray therapy, fibroids may be classified in three groups.

1. Those that should be rejected because of contra-indications.

2. Those that may, with good reason be accepted, but with guarded prognosis.

3. Those which yield uniformly good results.

*Contra-indications:* Degenerative changes in the tumor itself, as cystic or calcareous; necrosis of the tumor, with severe acute symptoms; sudden softening or rapid increase in size are suspicious, especially if cachexia develops. A pedunculated tumor, where obstructive torsion is imminent, is better extirpated.

A fibroid associated with large proliferating or solid ovarian tumors belongs to the surgeon.

The subserous tumors in the child-bearing period should be enucleated if children are desired.

The second fibroid group consisting of cases accepted but with guarded prognosis, may not yield results entirely satisfactory and yet may be treated with the x-ray. The first of these include women who present complications and therefore are poor surgical risks. Other women of this group are those who cannot turn aside from their business or home duties for hospitalization and also those who refuse surgery. A choice of procedure should be given after a full understanding as to prognosis.

The submucous tumor should be treated with guarded prognosis. It is estimated that about 10 per cent. of all fibroids are complicated with the submucous tumor, which usually recovers with the primary tumor under treatment.

In the third group are the subserous tumor and the vascular intramural fibroid.

The results with subserous tumors in older women are uniformly successful. The regression is a little slow, but new growths do not follow and the patient enjoys good health.

The intramural tumor of the hemorrhagic type is the one most successfully treated, fortunately it is the one of most frequent occurrence, constituting about 77 per cent. When these oc-



cur in women of 40 years or more they are ideal for x-ray treatment.

If in treating fibroids in younger women a temporary emenorrhea is desired, the amount of radiation is reduced early and the ovaries are carefully excluded. The primary shrinking of the uterus and ovaries, sometimes seen after x-ray treatment is often temporary. Dr. Mary E. Hanks has observed the following *phenomena*: First, the ovary shrinks to a small indurated mass, due probably to the disintegration of the ripe and ripening follicles; second, after some time has passed, the ovary will be found larger and in favorable cases may return to normal size and consistency. The uterus shares this recovery which occurs when the primordial cells develop and begin to function. Since these cells are the last to be influenced, the recovery may be expected in young women, if the treatment was judiciously given. Many ovaries are enlarged in the presence of a fibroid and they usually become normal as the vascular engorgement subsides. There are some ovarian enlargements which indicate moderate tissue change and they may need supervision even after general treatment is discontinued. This group contains the instances of the non-proliferating type of degeneration, in which the ovary may assume the size of a lemon. Such are associated with the graafian follicles and are promptly remedied.

The proliferating cystadenoma, the stromatogenous cyst, the dermoid and teratoma are distinctly surgical. Some cases of cervical erosion respond quite satisfactorily.

Hemorrhage of the menopause in which the uterus is enlarged, boggy and fibrosed is quite amenable to treatment. If accompanied by psychoses the menopause can be hastened considerably.

Women over thirty-five years of age afflicted with dysmenorrhea that has resisted all measures of relief and is incapacitating should be given x-ray therapy.

Geist's histologic studies have shown that the ovaries are the disturbing factor in the activity of the follicle or the corpus luteum; that there is a hyperplasia and hypertrophy of the glands and the cells of the stroma, also, a marked hypertrophy of the mucosa, the glands being tortuous, distended, sometimes increased in number and

frequently cystic; that the x-ray affects the follicle apparatus and destroys it.

Additional histologic studies have shown the following:

1. The utricular glands and the glands of the cervix soon become less in size and function. This is also brought about by the effects on the ovaries.

2. Ovarian stimulation is inhibited, probably by the effect, first, on the ripened follicle, then the ripening follicles, and if the radiation is continued long enough, on the primordial follicle and the interstitial tissue.

3. In the blood vessels the x-ray produces an edema of the endothelium of the capillaries, which creates an obliterating endarteritis, thereby cutting down the blood supply.

4. The fibroid tumor cell is gradually obliterated and replaced by young connective tissue.

There are a few ill-founded apprehensions which can be refuted, namely:

1. Will the patient become obese? Only to the extent of her natural tendency.

2. Does the sexual function become impaired? No, an absence of pain, the knowledge of impossible conception and the consciousness of having all the organs, gives an exhilaration unattainable by surgical methods.

3. If the tumor is not treated surgically is the danger of cancer greater? No, women who have had roentgen or radium therapy are not more prone to cancer than normal women.

4. Is there any danger of x-ray burns? None whatever if reasonable care is practised.

An exact statement of technic is not possible, however, an approximate outline is as follows: Kilo-volts peak 110 to 130, milliamperes 5, filtration aluminum 4 millimeters; the variables will be, size and number of portals, skin focal distance and time. The skin dose over each area will approximate two-thirds of an erythema and the frequency of repetition and the number of series is discretionary.

In conclusion, general management of the patient is necessary, preferably in co-operation with the attending physician or gynecologist.

## DISCUSSION

Dr. E. G. C. Williams, Danville: I started practicing medicine in 1910, at the high tide of the hysterectomy age, when it was not a question of how many operations were going to be done, but how many hyster-



ectonies were going to be done. I do not know the actual figures, but I believe since that time there has been a relative decrease in the number of hysterectomies, and I feel that radiation treatment in many of these cases can take the credit for cutting down the rate.

Dr. Hubeny made one statement and then went on, and I believe he did it to leave me something to talk about, because the rest of his paper I can not change in any way. He made the statement that he felt it would be well if there were uterine clinics as well as tumor clinics. I have talked for years on the idea of cancer clinics and that no one man is a law unto himself and that we would have better results if every case that presented with a tumor growth of any kind could be examined and reviewed by surgeons, internists, gynecologists and radiologists. The same will apply in a case of uterine hemorrhage. For a case of uterine hemorrhage to be seen by one man, possibly with a casual examination, and to say that because we have hemorrhage we must have a hysterectomy, is not fair to the patient and the public. I believe that consultation in these cases is highly desirable, and the most valuable consultant is the radiologist, because in so many cases results can be attained by radiation treatment which in past days would have been done by surgery.

Whenever we have our medical practice organized in a way that no one man tries to cover all the specialties, but where we can work as groups and freely consult and talk these things over, we certainly are going to go several steps in advance.

Dr. Lawrence Hilt, Springfield: I have had the unusual opportunity of having several of these cases, I think about fifty, in the last eighteen months. Practically all these cases were referred from one group, and that group is essentially surgical.

Our results have been quite satisfactory. We have had some people who are quite anemic, but we always get a blood count and go rather slow with them. If possible, we have a diagnostic curettage. Some people do not stand radiation therapy very well. One case in particular I had to treat five minutes each day, but we did it, giving a satisfactory result.

My one failure, that I call a failure, was with a patient who came in with a blood count of something less than two million and a hemoglobin of forty. She did not stand radiation therapy very well but stood enough so that over a period of three months she had one or two transfusions and the blood count was raised to four and one-half million. We operated simply because she did not like radiation therapy, but as a whole our cases have been quite satisfactory.

Dr. B. C. Cushway, Chicago: I think this is a very important subject. We all know that in the use of radiation treatment we treat many different varieties of pathology. As in other forms of therapy we do not get 100% results in all types of conditions treated.

The type of condition presented by Dr. Hubeny does

give a very high percentage of good results with radiation therapy.

There is one point I would like to make and that is that physicians are prone to advise radium treatment for this condition rather than roentgen ray treatment. In my own practice I have found the treatment of these cases by roentgen ray radiation is much superior to results obtained with radium. There are perhaps a few exceptions, but the majority of cases seem to do better with roentgen ray radiation.

Dr. Henry W. Grote, Bloomington: I should like to mention one case, sixty-nine years of age, that was taken to the hospital with a large fibroid, estimated twenty pounds in weight. During the night she developed an eruption over the supra-orbital and the patient was much alarmed. Much against the advice of the surgeon that patient was turned over to me for x-ray treatment. This happened in 1900 and it was the only case I know of in which I was unfortunate enough to have roentgen dermatitis, which might have been excusable since at that time the equipment used was not so efficient as that of today. That tumor mass disappeared under roentgen therapy and I am happy to say that the woman lived to be ninety-four years old, or twenty-five years after roentgen therapy was used.

Dr. E. L. Jenkinson, Chicago: I think that the point Dr. Hubeny brought out about the clinic has a very important part in the handling of these cases. We all know that the gynecologist is the captain of this industry, if we want to call it such. Most of these patients go to the gynecologist first. Nine-tenths of the gynecologists are good men but I think that many of these patients are operated upon who would do well if irradiated. This is especially true of the young girls.

In my experience in the hospitals, I do not see many fibroids and probably never will because of our very excellent gynecological service. We do occasionally see young girls, fifteen and sixteen years of age, having menstrual disturbance, having excessive bleeding to the point where they have become exsanguinated. I think that in a great many of these young girls, if properly treated, good results can be obtained. It is hard to tell exactly what to give these patients but fortunately most of these young girls will stand a great deal more therapy than older people.

I think the point Dr. Hubeny brought up about co-operation is very good. I do not think the gynecologist's word is the last word on this subject, any more than the radiologist's word is final. Close co-operation between gynecologists and radiologist will, I am sure, lead to better results, assuring the patient an unbiased opinion.

Dr. Morris Kaplan, Chicago: I want to quote a case that I think is apropos to this discussion. A girl about seventeen years of age had had continuous bleeding over a period of about three months before she came to my attention. She had had x-ray therapy administered to her on several occasions prior to this period of bleeding. Then she came to our attention at the hospital after she had been examined by two gynecologists, and

they insisted that the bleeding could not be stopped unless an operation was performed or the patient should receive further x-ray therapy.

I do not know why it is, but once in a while we get a hunch that something is wrong, and we sort of follow that hunch. I insisted that this patient have a curettage done before any further x-ray therapy was given, and it was surprising to find when the curettage was made that this patient had uterine polypi. These were operated upon and removed, and the patient stopped having hemorrhages. Regardless of how much x-ray therapy this patient would have received, I question whether the bleeding would have stopped. But had this patient been receiving x-ray therapy from our department at the hospital and the bleeding would not have stopped, x-ray therapy would have received another black eye.

Dr. O. A. Rawlins: I am not a member of this section, but I should like to ask Dr. Hubeny about a certain case history I have in mind. The girl, twenty years old, had uterine hemorrhages. The operation was absolutely negative and the curettement showed a slight metritis. How much assurance can I give this girl that she would not be sterilized in regular treatment and how long it would take? She is becoming very anemic and curettement does no good.

Dr. M. J. Hubeny, Chicago: A short time ago I had occasion to participate in a symposium in which the surgeon was given the opportunity of choosing the title; he selected "Surgery versus Radiation in the Treatment of Non-malignant Uterine Hemorrhage." Unfortunately he quoted the roentgen and radium literature rather extensively, essentially emphasizing the bad results and the hazards involved. This is not entirely undesirable as it makes those of different views more conservative and it was the purpose of my paper to be so, because I have always felt that methods are never competitive, but always selective, bearing in mind the best interests of the patient.

I was glad that Dr. Swanberg stated that radium is not so desirable as roentgen therapy in these conditions, although it is true that in certain forms of malignancy, radium excels and sometimes is used jointly with roentgen therapy.

Deep therapy hardly seems indicated in the cases under discussion. It is the energy that is absorbed that produces the cellular biochemical change and voltages around 120 kilo-volts peak seem amply sufficient. In addition it is always desirable to simulate physiological processes, therefore, oft repeated divided doses are preferable to one massive dose. Another advantage in giving divided doses is the opportunity to note the progress, so that the least amount of radiation can be administered.

With reference to castration as a possible end result, the previous remarks obtain; it is impossible to state when a patient will be permanently sterilized, especially when a series of four or eight treatments have been given as a complete course. The fewer the treatments necessary to produce the desired results the less apt are we to produce permanent sterility.

## BRONCHIAL ASTHMA AND PULMONARY TUBERCULOSIS\*

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The relationship between bronchial asthma and pulmonary tuberculosis has been the subject of considerable controversy; some investigators, for instance Soca,<sup>1</sup> contend that tuberculosis may be directly responsible for asthmatic attacks. Others ascribe a more indirect rôle to tuberculosis and believe that the presence of fibrosis, diaphragmatic adhesions, thickened interlobar pleura and hilum lymph nodes may have an important bearing on the attacks. In contrast to these two views, other observers hold that an asthmatic rarely becomes tuberculous, and that any inter-relationship between the two diseases is doubtful.

Wallgren<sup>2</sup> states that it is not proved that tuberculosis induces an increased predisposition to bronchial asthma, and that the frequency of tuberculosis in asthmatic children is greatly overestimated. Although asthma and bronchial lymph node tuberculosis rarely occur coincidentally, one is not justified in assuming that an antagonism exists between them. Fishberg<sup>3</sup> states that when an asthmatic becomes tuberculous, which occurs infrequently, the paroxysmal attacks of dyspnea disappear or are relieved. He also believes that the pseudo-asthmatic attacks which occur in phthisis are usually due to pulmonary fibrosis and cardiac dilatation.

Malone<sup>4</sup> likewise contends that the possibility of pulmonary tuberculosis being of asthmogenic importance is open to question and that anaphylaxis resulting from the protein of the tubercle bacillus is not an established fact. The common tendency of assuming that demonstrable organic disease processes must be directly responsible factors in an asthmatic crisis undoubtedly accounts for much confusion.

Bezonquan and de Jong<sup>5</sup> struck an important note in their paper on asthma and pulmonary sclerosis when they concluded that, while the fundamental disease of these patients is pulmonary sclerosis, on a tuberculous background, the determining factor is the individual, "especially alive to nervous reactions," to certain irritations, exogenous or endogenous, who becomes

\*Read before Chicago Tuberculosis Society, May, 1932.



subject to paroxysmal respiratory crises called asthma. They emphasize the need for a consideration of the constitutional factors as well as the organic pathological processes underlying the asthmatic syndrome. This divergence of opinion as to the rôle that tuberculosis plays in the asthmatic paroxysm led Harkary and Hebold<sup>6</sup> to investigate the question from the following angles: First, what rôle does true hypersensitiveness to foreign proteins play in the causation of asthmatic symptoms in tuberculous patients? Second, what part does non-specific infection play in the production of asthmatic attacks? In examining the histories of a large group of bronchial asthma patients they found eighteen who had clinical and x-ray evidence of pulmonary tuberculosis. All of these were ambulatory. The sputum of only three was positive for tubercle bacilli at some time before coming to the asthma clinic. Of these eighteen cases, only nine were found to give evidence of protein hypersensitiveness by means of skin tests. The fact that allergic patients may show evidences of multiple sensitization Taub,<sup>7</sup> on testing, adds to the difficulty of establishing definitely the relationship between the incriminating protein and the other reacting substances. Harkary, therefore, employed the method of passive transfer of Prausnitz and Kustner.<sup>8</sup> Prausnitz and Kustner showed that the sera of allergic individuals contain specific immune bodies which can be transferred to normal individuals. These bodies are called "atopic reagins" by Coca.<sup>9</sup>

In order to ascertain the existence of true allergy in tuberculous patients by demonstrating the presence of atopic reagins in their sera and to determine whether the tuberculosis in these patients is merely an associated disease, implanted in an individual who is constitutionally allergic, Harkary et al. studied six of nine sensitive asthmatics by the passive transfer method.

*Technic.* Twenty-five cubic centimeters of blood was drawn from the vein at the bend of the elbow and the serum separated and put through a Berkefeld filter; 3 c.c. of serum from each case was injected into the peritoneum of each of two control guinea pigs for the purpose of assuring its sterility before passive transfer was done on normal people. None of the guinea pigs contracted tuberculosis, although observed for two months.

Patient 1 showed skin sensitiveness to goat

hair, house dust, horse dander and dog hair. Passive transfer showed reagins to goat hair only.

Patient 2 showed skin sensitiveness to goose feathers and rabbit hair; reagins to goose feathers only were found.

Patient 3 showed skin sensitiveness to house dust and mixed feathers; reagins to both were present.

Patient 4 showed skin sensitiveness to house dust and tobacco by the cutaneous test; reagins to both were found.

Patient 5 showed skin sensitiveness to goose feathers and rabbit hair; reagins to goose feathers only were present.

Patient 6 showed skin sensitiveness to ragweed; giant and small were present.

Of the nine non-sensitive cases, six presented chronic sinus disease involving the antra and ethmoids and three non-specific pulmonary infections limited to the lower lobes, such as chronic bronchiectasis and chronic pneumonic involvement. The relationship between the asthmatic attacks of these patients and the pathological lesions may be explained in several ways. In the first place, the paroxysmal attacks of asthma occur in individuals with an imbalance of the vegetative nervous system. This constitutional peculiarity may be further exaggerated and stimulated by toxins or histamine-like substances elaborated by bacteria present in the respiratory tract, as shown in the work of Kessler et al., which directly or indirectly may induce bronchial spasm. Coca designates this condition as due to hypersensitiveness to infection. Whether a true bacterial allergy exists in such cases is still a debatable question. Hypersensitiveness to autogenous bacteria recovered from the bronchial secretions has not been actually demonstrated in the human body.

In a review of 100 asthma patients from the Allergy Clinic of Northwestern University Medical School, eight, or eight per cent., had clinical and x-ray evidence of pulmonary tuberculosis. At the time these patients were observed they were considered as quiescent or apparently arrested cases with negative sputa. Of these eight patients, three were sensitive asthmatics. Cutaneous tests showed a markedly positive reaction to wheat in one. Patient 2 showed reactions to goose feathers and chicken feathers and Patient 3 gave reactions to house dust and orris root.



All these patients were freed of asthmatic attacks by removal of the offending proteins. We may be reasonably justified in concluding, therefore, that foreign proteins of the inhalant and ingested group and not the tubercle bacillus were responsible for the asthma in this group.

The five non-sensitive cases gave evidence of foci of infection, two having chronic sinusitis, two bronchiectasis and one a chronic focus of organized pneumonia. The asthma in this group is, therefore, to be ascribed to the complicating respiratory infection and not to the tubercle bacillus.

This group of patients has done very well during the summer months. In this regard they behave exactly as do the asthmatic bronchitis cases who are free from pulmonary tuberculosis. In the winter they are subject to "recurrent colds" to which, in spite of their sinus operations, they are not completely immune. These new colds relight their chronic foci and continue to irritate fresh asthmatic attacks. In our hands operative procedures in the presence of chronic hyperplastic sinusitis has been of no value whatsoever. Only cases with frank pus in their sinuses have derived any benefit from operative interference. Climatic change has been of the greatest value.

More than one factor may operate in the causation of an attack of asthma. The constitutional or hereditary factor is usually present first, allowing the patient to become sensitized. The second factor necessary is the presence of the exciting substance, such as dog hair for instance. The patient may still be free from symptoms until the third factor, the non-specific cause, is present. The latter may be thermal, as cold air; infections, such as sinus disease; bronchitis, coryza; mechanical, such as nasal polypi and dust, and nervous influences. The discussion of the fundamental principles of allergy will not be undertaken here. The original meaning of Pirquet and Schick in 1906 may be recalled, viz., "a change occurring in an organism after contact with a living or inanimate organic poison and manifesting itself in an altered reaction to a second application of the same substance (or closely related)."

The technic of skin testing will not be discussed here except to mention that there are four methods in use for performing these tests.

First, the cutaneous or scratch test, which con-

sists of making small linear cuts into the epidermis about one-eighth inch long and one inch apart and placing a small amount of the powdered protein on each scratch. A drop of tenth normal sodium hydroxide is placed on the protein and rubbed in with the sharp end of a toothpick. It is allowed to dry and after twenty minutes is wiped off with water and the reactions are read. The second method is the intracutaneous test, which is done by the injection of .05 c.c. of the dissolved protein into the skin, raising a small wheal.

A third method which can be used to determine hypersensitivity is that of the passive transfer technic. Blood is withdrawn from the patient and centrifuged at high speed. The serum is injected intradermally in a non-sensitive individual and skin tests are made over these areas. A fourth method,<sup>10</sup> the so-called patch test, is now being used with considerable help in discovering the cause of some obscure cases of dermatitis venenata.

About 250 of these proteins are available for testing each case of allergic disease. In a previous communication<sup>11</sup> I reported an asthma caused by canary feather protein and an eczema caused by silk. Incidentally, such cases emphasize the importance of making a sufficiently varied set of tests on each patient and of not being content with the more common substances.

*Course and Prognosis.* Following the removal of the offending proteins, the clinical course of the sensitive asthmatics has been satisfactory, so far as their asthmatic seizures were concerned. The progress of the non-sensitive asthmatics has been less favorable. These cases are difficult to control except for short intervals. Vaccines are of doubtful value. Change of climate has been a great help.

*Conclusions.* A survey of the material presented brings out the following salient points:

Of 100 cases of bronchial asthma, eight, or eight per cent., had clinical and x-ray evidence of pulmonary tuberculosis, all ambulatory and quiescent or apparently arrested cases. Of this number, three were sensitive asthmatics who reacted to foreign proteins of the inhalant and ingestion group. These patients were freed of their asthmatic attacks by removal of the offending proteins. The non-sensitive cases gave evidence of foci of infection, such as chronic sinusitis, bronchiectasis and a chronic focus of

organized pneumonia. The asthma in this group is, therefore, to be attributed to the complicating respiratory infection and not to the tubercle bacillus.

Every asthmatic patient, therefore, should be thoroughly skin tested, regardless of the associated disease which may be present. In this way many more patients will be relieved of their asthmatic symptoms.

#### BIBLIOGRAPHY

1. Soca, F.: Arch. Gen. d. Med., 1906-1907, p. 160; Arch. Gen. de Med., 1907, p. 353.
2. Wallgren, A.: Asthma und Tuberculose bei Kindern, Acta Paediatr., 4:286, 1924.
3. Fishberg, U.: Pulmonary Tuberculosis, Lea and Febiger, Philadelphia and New York, third edition, 1922, p. 589.
4. Malone, J. J.: Asthma and Tuberculosis, U. S. Vet. Bureau Med. Bull., March, 1928, 4:222.
5. Bezonquon, F., and de Jong, S. J.: Asthma et Sclerose Pulmonaire, Presse Med., 1920, 28:885.
6. Harkary, Joseph and Hebold, Selian: American Rev. Tuberculosis, 1930, p. 644.
7. Taub, Samuel J.: Multiple Sensitization in Allergic Diseases, Ill. Med. Jour., April, 1930.
8. Prausnitz, C., and Kustner, H.: Centralbl. f. Bakt., 1921, 36:160.
9. Coca, A. F., and Grove, E. L.: Jour. Immunol., 1925, 10:445.
10. White, Cleveland, and Taub, Samuel J.: Sensitization Dermatoses of Non-fungous Nature, J.A.M.A., Feb., 1932, p. 524-528.
11. Taub, Samuel J.: Some Unusual Cases of Protein Sensitization, Ill. Med. Jour., 53:272, April, 1928.

### SUPERIOR LARYNGEAL NERVE SECTION IN ADVANCED LARYNGEAL TUBERCULOSIS

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Any one associated with the treatment of tuberculous patients in a sanatorium will discover that a complicating tuberculous involvement of the larynx will materially interfere with the restitution of the lungs. This complication at once renders the prognosis worse and interferes with the general treatment. St. Clair Thomson, because of this important observation divided tuberculous laryngitis into three groups according to the amount of pulmonary involvement, essentially viz.: group 1 having an early lung involvement; group 2 having moderate, and group 3 having marked and hopeless involvement. A laryngeal tuberculous involvement, even in a very early lung condition moves the prognosis of an otherwise group 1 into group 2; and a laryngeal involvement in an otherwise

group 2 patient places him immediately into a hopeless 3 division. In summing up his experiences I may do well in quoting this authority who states: "A larynx may improve or get well, while the lung disease remains quiescent or gets worse; but if the disease in the larynx advances the pulmonary disease cannot possibly become arrested and soon makes progress."

These observations demand the cognizance that the treatment of tuberculous laryngitis assumes a most paramount role in our anti-tuberculous regime. The importance of an early diagnosis and early treatment is therefore very evident. Any negligence on our part or on the patient's will necessarily lead him to dire consequences in very many cases—that of a marked painful tuberculous throat, interfering with nourishment and sleep, and finally robbing the patient of his life. So important is this, that many patients confined in a sanatorium soon seek special aid for their throat when pain or marked hoarseness develops. From observing the suffering of others, they soon learn that a little pain or hoarseness may be the beginning of an ignominious end if not early and properly attended to.

In a previous paper which appeared in the ILLINOIS MEDICAL JOURNAL of May, 1930, I discussed the prophylaxis and early treatment of laryngeal tuberculosis. As these cases are attended with only moderate involvement its treatment is confined essentially to prolonged vocal rest and the galvanocautery. But the individual is not often fortunate enough to have such early diagnosis and treatment, and comes to us for the first time with marked involvement of the lungs and advanced laryngeal involvement with pronounced dysphagia. Such are the many cases that I see at the Oak Forest Tuberculosis Sanatorium. With this marked dysphagia there are the sleepless nights and the painful swallowing of food which drains the already depleted reserve vitality of the patient. The sight is pitiful and a dreadful death is positive unless the pain is alleviated.

In behalf of these suffering mortals I am addressing you. Our treatment should be directed to ease his lasting days and to restore to some degree the hope and feeling that the end is not quite so bad. We as physicians are called upon to relieve physical and mental torture. Many times have their kin pleaded that I do



something to ease that incessant, tormenting pain of the patient, knowing that the life of the sufferer, like the last flickering of a candle would soon be out.

Pathologically these cases are usually those of extensive infiltration and ulceration, sometimes attended with necrosis of the underlying cartilage and involvement of the arytenoid articulation.

To achieve this end I have resorted to the sectioning of the superior laryngeal nerve, the primary sensory nerve to the larynx, under local anesthesia. I have also performed it as a preparatory operation to galvano-cautery to the larynx where there still seemed some chance of healing the involved tissues by cautery punctures. Here operation is intended as an adjuvant to the dysphagia where the part may be arrested by thermo-cautery and other measures. These cases are those of marked induration in which the use of thermo-cautery punctures tends to result in healing through cicatricial contracture.

Before briefly explaining the technique of the operation, it may be well to state the preference of superior laryngeal nerve section for some other described methods in the control of pain. The injection of alcohol has not a few followers, but has the following disadvantages. Firstly, the method of alcohol injection is uncertain. To obtain any kind of lasting result, it is essential that the alcohol be injected directly into the nerve sheath. Considering the smallness of the nerve and its movable position in a lax tissue bed, it is evident that an intraneural injection is well nigh impossible. What really happens is that a perineural infiltration results instead of an intraneural one. Although this produces anesthesia at the time of injection the effect is not lasting. One of my last cases a young man who had had two such injections but with short relief of his dysphagia and referred pain to the ear. I have seen many others. Moreover, were it possible to inject the nerve intraneurally, most of the time, the results seldom last more than 30 days and is usually of much shorter duration. This necessitates repeated injections which are even less likely to be successful probably because of adhesions as the result of former injections. On the other hand the resection of the superior laryngeal nerve is definite and lasting. It is true that tuberculous patients undergo oper-

ative procedures poorly, but when we consider that this operation consumes no more than 10-15 minutes including the anesthesia infiltration, the factor of shock is very little more than alcohol injection, and is negligible when compared to its miraculous results.

A unilateral section is the usual procedure in these cases since the dysphagia with referred pain to the corresponding ear is usually on one side. However, another section may be performed on the opposite side a week or two later if the dysphagia is bilateral or it may be performed on the opposite side at a future time when pain occurs on the other side.

The technique of the superior laryngeal nerve section is relatively simple, consuming usually not more than 10-15 minutes including the local anesthesia infiltration. A horizontal incision of about two inches is made with the head extended, from the midline of the throat in the space between the hyoid bone and the thyroid cartilage. By blunt dissection a space is found between the external laryngeal muscles and the external carotid artery in its sheath. Here the lateral end of the hyoid cornu can be felt. By medially retracting the thyro-hyoid muscle and tissues above it, the thyro-hyoid membrane comes into view and by blunt dissection the superior laryngeal nerve is seen coursing along its surface. Pinching or pulling on the nerve will elicit referred pain to the corresponding ear and in the throat. The internal branch is resected just before it enters the interior of the larynx, but the main branch of the superior laryngeal nerve as it emerges from under the hyoid bone may be ligated and cut in toto. This interrupts the innervation through its external motor branch to the crico-thyroid muscle as well, but there is no contraindication to this procedure.

When this work was first started about six years ago, the internal branch of the nerve was isolated and a portion removed. This was done primarily to save the external motor branch to the crico-thyroid by not resecting the main trunk, but later the main trunk was sectioned between two ligatures because there appeared to be no saving of function in sacrificing the motor branch to an already markedly impaired larynx, and in so doing obviating the added consummation of time and trauma in isolating the internal branch. Also after developing a rapid and sure technique, it



was deemed unnecessary to remove a piece of nerve for microscopic identification, as has been recommended by some. Therefore only a simple cutting of the main trunk was performed between two ligatures, burying the inner end under the muscles covering the larynx.

The immediate effect upon resection of the superior laryngeal nerve is the disappearance of dysphagia, pain and discomfort in the larynx and the referred pain to the corresponding ear which accompanies it.

With the sectioning or resectioning of the superior laryngeal nerve there occurs some motor difficulty in swallowing, due to disturbance of innervation to the pharyngeal plexus. The sensation may be described as a clogging in the throat while swallowing food. This motor difficulty which usually lasts for three days after a unilateral section is not marked, and does not interfere with eating. With a bilateral nerve section the motor difficulty is more marked and of longer duration but becomes less pronounced with time. However, bolus foods are swallowed without much trouble during the readjustment period following bilateral resection. The complaint is less pronounced and of shorter duration the greater the time between the two resections. This difficulty is slight when compared with the renewed hope and vitality with the disappearance of pain. When dysphagia, discomfort or pain is due to pathology outside the innervation of the superior laryngeal nerve, other measures must be sought. For example, in one case the dysphagia reappeared on one side after a previous bilateral nerve section. On examination it was discovered that the right portion of his epiglottis was very greatly swollen and edematous, thus causing much pain on swallowing. This had developed after the second nerve section and as the part involved was innervated by the glossopharyngeal one could not expect the section of the superior laryngeal nerves to control the pain which had developed. However, these complications can be controlled by other measures as the case demands.

The effect the resection has on the tuberculous process in the larynx, is even in moderately advanced stages a matter of importance. There is no doubt that the control of pain allows for more rest, and more food with resulting increased resistance and strength. It also allows the freeing of tuberculous secretion from the throat

which had heretofore become stagnant because of the pain attending its expectoration or swallowing. The removal of such infected sputum gives the larynx a chance to be treated by galvano-cautery and other measures, since constant bathing of pus means continued re-infection. Some authors further believe that section of the superior laryngeal nerve exerts a direct healing influence on the inflammatory condition of the tuberculous larynx, on the theory that this results from blocking the sensibility to the inflammatory process. Regarding my observations there is no doubt in my mind that section of the superior laryngeal nerve exerts a definite reaction in the larynx. In not a few of my cases I have observed a velvety, dusky red hyperemia following resection, with subsidence of the infective process. That such hyperemia may be due to the unhampered sympathetic fibers, thereby producing vasodilatation with its increased blood supply may be plausible.

It may be well before closing to illustrate the great benefit of superior laryngeal nerve section by citation of a few cases.

Case 1, J. H., white, aged 52 years, admitted to the tuberculosis hospital Dec. 12, 1927, with advanced, active, pulmonary tuberculosis. Hoarseness had been present 10 weeks prior to admittance while dysphagia was evident for about 8 weeks on the right side. The dysphagia was of a marked degree, worse at night, thus interfering with sleep. It was aggravated by his frequent coughing and swallowing, especially the citrate foods. The entire larynx on examination appeared edematous, swollen and pale. The arytenoids and epiglottis were greatly swollen and edematous. A mouse-eaten ulceration was evident on the free edge of the epiglottis. On Dec. 29, 1927, under novocaine infiltration anesthesia, the right superior laryngeal nerve was sectioned. For the first day following the operation there was no pain except an occasional pain in the line of incision upon excessive coughing. Also for a few days following the operation the patient had some difficulty in swallowing solid food which gave him the sensation of a foreign body. He began to sleep undisturbed since the operation. On Jan. 4, 1928, he reported that he felt good, coughs less and appetite better. He began to gain weight shortly after the operation, but his lung and larynx condition had progressed in severity. Death occurred on the evening of Feb. 4, 1928, but even during that day he was in good spirits and complained of no pain.

Case 2, G. S., white, aged 37 years, was admitted to the hospital on Apr. 11, 1924, with a moderately advanced, bilateral, active, pulmonary tuberculosis. Discomfort in his throat began 4 months previous to his first laryngeal examination on Jan. 4, 1928. This discomfort began with hoarseness which was insidious

and about the beginning of Jan. 28, his dysphagia began. The dysphagia was mostly in the right side of the throat and referred to the right ear. Nourishment and especially sleep were greatly interfered with. His larynx revealed an advanced laryngeal tuberculosis. The epiglottis was markedly injected, swollen and edematous. Both arytenoids were also markedly swollen and edematous. There was infiltration of both cords and a mouse-eaten ulceration along their entire border. A right superior laryngeal nerve resection was performed Jan. 17, 1928, under local anesthesia. He had some motor difficulty in swallowing for 2 days following the operation. This he described as a lump in throat during swallowing but there was no dysphagia. The referred pain to his right ear had also left him. Shortly after the operation his appetite became better and he was able to eat and sleep again. The patient left the hospital but complained of no pain in his throat after the nerve resection.

Case 3, F. R., white, aged 29 years, entered the hospital on May 24, 1927, with advanced, bilateral, active, pulmonary tuberculosis with cavitation. Difficulty in eating, with dysphagia on the left side were present since January, 1927, but his hoarseness and loss of voice was marked by June 3, 1927, when his larynx was first examined. There was moderate injection and swelling of both arytenoid bodies but no ulceration was evident. A left superior nerve resection was performed under local anesthesia on June 27, 1927. Up to this time he had been losing weight but he gained one pound in a week after the operation. He began to eat and sleep well and gradually gained strength, but a month later he suddenly became very ill with attacks of diarrhea and finally died on Aug. 6, 1927. There was no pain in his throat or any laryngeal discomfort since the operation, and he was able to eat everything without pain in his throat.

Case 4, E. M., white, aged 46 years, was admitted to the hospital on Nov. 11, 1928, with marked active, pulmonary tuberculosis. He had lost considerable weight during the past year. This amounted to 30 pounds of which 20 pounds were lost in the last 6 months. Dysphagia had been present for 2 months prior to his entrance and was constant day and night on both sides of his throat and referred to both ears, so that nourishment and sleep were nigh impossible. A laryngeal examination on Nov. 22, 1928, revealed a greatly injected mucosa. Both arytenoids were red, swollen and edematous. Both ventricles appeared swollen and there was marked infiltration and swelling of both cords. There was no apparent ulceration. A bilateral superior laryngeal nerve resection was performed on Dec. 12, 1928. All dysphagia ceased with the operation. The patient had motor difficulty in swallowing food for a week following the operation, but the sensation of food stuck in his throat gradually decreased after this time. It was less evident on swallowing larger pieces of solid food. Coughing spells induced by swallowing fluids gradually disappeared. The patient was examined every week and by Jan. 29, there was only occasional choking on swallowing either solids or liquids. He began to enjoy his food and gain

weight. On Jan. 3, 1929, patient left the hospital but had no laryngeal discomfort.

Case 5, C. S., white, aged 30 years, entered the hospital on Feb. 2, 1929, with an advanced pulmonary tuberculosis. During the past 14 months he had lost 70 pounds, 40 of which he lost during the last 3 months. This was associated with dysphagia which prevented eating or sleeping. Two weeks before his admission he was a patient at Illinois Research Hospital where injection of the left superior laryngeal nerve, presumably with alcohol was performed with short relief of his dysphagia. His hoarseness which was moderate had been present for 3 months. The dysphagia which was severe was of a dual nature, there being pain in his pharynx and mouth on eating as well as pain in his larynx. This was referred to both ears. The pain was worse on the left side. Laryngeal examination revealed a marked ulcerative tuberculous process involving the epiglottis, cords and arytenoid bodies. There was also a markedly advanced ulcerative tuberculous process of the uvula and anterior and posterior pillars. On Feb. 15, 1929, under local anesthesia, a bilateral superior laryngeal nerve section was performed. By Feb. 21, 1929, the wound had healed by first intention. The patient complained that food stuck in his throat but there was no pain on swallowing. Swallowing induced some coughing incident to this motor difficulty. He complained of poor appetite and upset stomach. Expectoration was profuse. The patient died on March 10, 1929.

Case 6, G. H., white, aged 30 years, was admitted to the hospital in March, 1931, with advanced, bilateral, pulmonary tuberculosis. His laryngeal symptoms dated back 3 months, when he developed a sore throat. One and a half months later hoarseness developed which gradually became worse. At first soreness and slight dysphagia remained on left side and was referred to left ear. The dysphagia gradually grew severe, involving both sides. Because of his dysphagia, patient had an alcohol injection of the left superior laryngeal nerve on Nov. 25, 1930, in Phoenix, Arizona, which was repeated Dec. 9, 1930. These were followed by a severe reaction for 3 days and then relief for about one week. The dysphagia and pain, however, gradually returned and with involvement of his right side, it became so severe and constant that for past 2 weeks sleep and the taking of nourishment were practically impossible. A laryngeal examination on Jan. 8, 1931, revealed an advanced tuberculous process, with marked infiltration and swelling of epiglottis, vocal cords and arytenoids, and ulceration of both vocal cords. The process was more marked on the left side. On Jan. 12, 1931, under cocaine anesthesia, cautery puncture of epiglottis was performed. Relief of pain and dysphagia lasted 4 days. Examination again revealed a markedly increased swollen epiglottis on the left side. The upper portion of this was removed with a punch forceps. There was no relief from this procedure. Laryngeal examination of the larynx on Jan. 22, 1931, revealed a large left mass anterior to epiglottis, encroaching on the pyriform sinus. This was not apparent previously. Section of the left superior laryn-



geal nerve was performed on Jan. 22, 1931. This decreased the left sided dysphagia and pain, but continued on the right side. On Jan. 29, 1931, the right nerve was sectioned. Dysphagia continued with less severity on left side where his epiglottis was ulcerated and he died on Mar. 14, 1931.

I have operated upon many more of such unfortunates, but because of lack of time have only outlined a few of them.

In conclusion may I appeal to you for the performance of this operation in these cases. The perusal of these cases clearly defines the great benefit derived by the performance of the operation. Those few who continue to have some pain because of the occurrence or development of ulcerative processes outside the nerve supply of the superior laryngeal nerve is no reason against its employment. Most often we institute a last- ing, efficient, rapid, gratifying and most welcome procedure. It gives the patient a new hope and the surgeon a new chance to attack the diseased tissues by further means available. Even if, as often happens, these patients come to us for the first time when beyond any possible hope, the relief of a terrifying and painful death is more than a boon to these unfortunates.

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#### REFERENCES

- Steinman, C. B.: The Actual Methods of Treatment of Dysphagia in Laryngeal Tuberculosis, *Annales des Maladies de l'Oreille, du Larynx, du Nez et du Pharynx*, (Dec.) 1925. *Abst. Jour. of Laryngology and Otology*, 41; 413, 1926.
- Hoffman, R.: Daueranaesthesia in tuberculösen Kehlkopf, *München med. Wchnschr.* 22; 739-740, (No. 14) (April) 1908.
- Schugt, H. P.: The Treatment of Dysphagia in Tuberculosis of the Upper Air Passages, *Archives of Otolaryngology*, 4, 8; 424-432, (Oct.) 1928.
- Lewy, A.: Analgesia of the Larynx by Alcohol Injection of the Internal Branch of the Superior Laryngeal Nerve, *Laryngoscope*, (Jan.), 1911.
- Piersol, G. A.: *Human Anatomy*, 4th. Edition; J. B. Lippincott Co., Phil., 1913.
- Wachmann, Dr.: Ueber die Resektion des Nervus laryngeus superior bei der Dysphagia der Kehlkopftuberkulösen, *Arch. f. Laryngologie und Rhinologie*. 30, H. 1.; 105-110, 1916.
- Mayer, O.: Die Durchschneidung des Nervuslaryngeus superior bei Schluckbeschwerden der Phthisiker, *Wiener klin. Wochenschr.* 34: 1-2, (Jan. 6), 1921.
- Schukoff, G.: Resection des nervus laryngeus superior bei Larynx tuberculose, *Ztsch. f. Hals-, Nasen- u. Ohrenh.* 413-11, 1923.
- Schugt, H. P.: Tuberculosis of the Larynx; Treatment by Surgical Intervention in the Superior and Inferior Laryngeal (Recurrent) Nerve: A Report bases on Seventy-nine cases, *Arch. of Otolaryngology*. 4: 478-488. (Dec.) 1926.
- Beck, F.: The Exposure of the Superior Laryngeal Nerve for Resection. *Zeitsch. f. Hals-, Nasen, — und Ohrenh.* 11; 541.
- Teller, W.: Neurotomie des Laryngeus superior bei fortgeschrittener Kehlkopftuberkulose, *Zeitsch. f. Tuberkulose*. 36, H. 3; 35-36.
- Mayer, O.: Die Durchschneidung des Nervus laryngeus superior bei Schluckbeschwerden der Phthisiker, *Wiener klin. Wochenschr.* 34: 1-2, (Jan. 6), 1921.
- Kalina, O. G.: Zur Frage der Resektion des Nervus laryngeus superior bei schluckbeschwerden infolge einer Dysphagia, durch eine Tuberculose des Kehlkopfes veranlasst, *Monatschr. f. Ohrenh.* 60: 234, (March), 1926.
- Spiess, G.: Die Bedeutung der Anaesthesia in der Eutzündungstherapie und ihre Nutzenanwendung speziell bei der Behandlung der Kehlkopftuberculose, *Arch. f. Laryngol.* 21: 120, 1909.
- Groll, H.: Die Entzündung in ihren Beziehungen zum nervösen Apparat., *Beitr. f. path., Anat. u. f. Allg. Pathol.* 70: 20, 1922.

### CONGENITAL DIAPHRAGMATIC HERNIA ASSOCIATED WITH AN ACCESSORY LUNG

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CHICAGO

The condition in which an accessory lung is associated with a congenital diaphragmatic hernia is a sufficiently rare anomaly to warrant the report of the following case:

The patient was a full-term female child delivered at Saint Bernard's Hospital, Chicago, by Dr. F. A. Lofton, to whom we are indebted for the privilege of reporting this case. The mother was well developed and nourished, white, and thirty years of age. She had three living normal children, ages 6, 4 and 2 years, and had had no other pregnancies. Her obstetrical history was essentially negative, and the labor was normal and of three hours' duration, ending in a spontaneous delivery. Artificial respiration was necessary to initiate the breathing of the child, and respiratory difficulty was early apparent. The child soon became cyanotic and died about one hour after birth, respiratory stimulants having had no effect.

The post mortem examination revealed a well developed and nourished new-born female infant weighing eight pounds and one ounce. The head was moderately molded and a slight caput succedaneum was present. There were no abnormalities of the skull, spine or extremities. The thoracic and abdominal organs were removed intact. (Fig. 1 and 2.)

The left chest cavity was about three-fourths filled by an oval tumor mass arising from the superior surface of the left leaf of the diaphragm. This mass measured 7 cm. long, 7 cm. side to side, and 4.5 cm. antero-posteriorly. It was covered by a glistening membrane, which was tough, but of tissue-paper thinness. The membrane fused imperceptibly with the parietal pleura of the diaphragm. Through the membrane it could be seen that the mass was made up of many coils of intestines, and at the superior-lateral edge was visible the darker body of the spleen, which was 5 cm. in length. This hernial sac was perfectly free and separate from the left lung, which lay above and behind its apex.

The abdomen contained the liver and a single segment of large bowel, representing the distal two-thirds of the transverse colon and all of the descending colon.

When the hernia was reduced, it was seen that the sac contained the entire stomach, small intestine, cecum and ascending colon, the pancreas and spleen. Viewed from below, the hernial orifice measured 4 cm. in diameter, and occupied a position in the postero-median segment of the left leaf of the diaphragm. The muscular portion of the diaphragm was from two to five centimeters in width anteriorly to the opening. The pos-



Fig. 1. Anterior view of specimen.

B—Hernial sac.

C—Liver.

D—Under-surface of left leaf of diaphragm with arrow pointing to edge of hernial orifice.

terior edge of the opening was practically fused with the thoracic attachment of the diaphragm at the upper pole of the left adrenal gland. The suspensory ligament suspending the left lobe of the liver was attached for a distance of 3 cm. along the antero-median edge of the hernia opening, and from the edge of this ligament there was dependent a flat, 7-mm. tag of liver-tissue, which was separate from the main left hepatic lobe. The lining of the hernial sac was a smooth, glistening membrane, which fused with the peritoneum of the under surface of the diaphragm at the hernial orifice.

The esophagus occupied its normal position in the mediastinum, but at its lower end was pulled sharply to the left in front of the aorta, and the cardio-esophageal junction was adherent to the medial posterior border of the hernial orifice, the fundus of the stomach occupying a position near the center of the herniated mass.

There were no other anomalies of the abdominal viscera other than those due to torsion and displacement in the sac.

The heart and aorta, the pericardial sac and thymus gland were normal for a new-born infant.

The right lung fairly well filled the right chest cavity, which was reduced in size by a displacement of the

mediastinal organs to the right. The upper and middle lobes were partially fused together by a thin septum. The middle and lower lobes were separate. The lung was fairly well distended with air, there being a few small scattered atelectatic areas. The whole right lung measured  $8 \times 3.5 \times 2.5$  cms.

The thymus measured 3.5 cm. from side to side, 4 in its long axis, and from 1 to 1.5 cm. in thickness.

The left lung was composed of two distinct lobes, which together measured 6 cm. in the long axis of the body, 4 side to side, and 1 thick. It had been flattened somewhat by the herniated mass, and although crepitant it was more atelectatic than the right.

The trachea, main bronchi and large mediastinal vessels were in their normal positions.

In the lower part of the left pleural cavity, posterior and medial to the hernial mass, was a roughly triangular organ with its apex directed upward, and measuring 4 cm. long and 2 to 2.5 cm. on each of its three sides and base. This structure was covered by a smooth, glistening membrane, and was a purple-blue color similar to that of the atelectatic portions of the lungs. It was uniformly soft and flabby. It was attached at the medial side of its base by a pedicle, 8 mm. in dia-



Fig. 2. Posterior view of specimen.

A—Accessory lung (against white contrast background).

B—Hernial sac.

C—Left lobe of liver.

meter and 8 mm. in length, to the upper surface of the diaphragm, being fused with the edge of the hernial opening as well as with the diaphragmatic attachment to the posterior thoracic wall at the vertebral column. This pedicle was covered by a continuation of the smooth membranes which covered the hernial sac on its superior surface. Surfaces made by cutting this mass revealed its fine spongy character, the tissue being moist and edematous, but containing no air. Several small



cyst-like cavities up to 3 mm. appear on these surfaces. When the pedicle was dissected, it was seen to be made up largely of rather tough fascia, which was attached to the wall of the stomach at the cardiac orifice. Its arterial blood supply was mainly derived from a vessel, 3 mm. in circumference and 2 cm. long, which came off the anterior wall of the thoracic aorta 1.5 cm. above the orifice of the superior mesenteric artery. Running parallel with this was a thin-walled vessel, 2.5 cm.

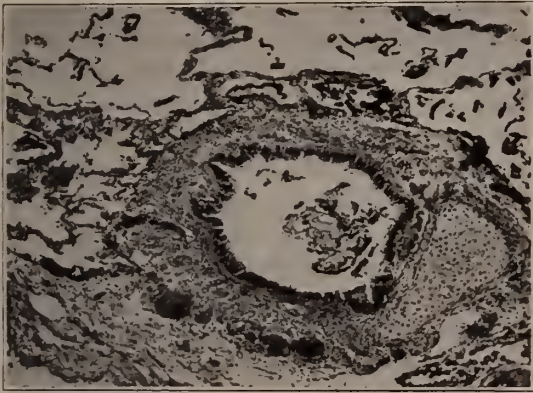


Fig. 3. Low power photomicrograph of accessory lung tissue, showing bronchus with cartilage. Extensive desquamation of alveolar epithelium, probably an artefact.

long, which emptied into the splenic vein near its junction with the portal.

Further dissection of the hilus of this organ opened into a cavity about 6 mm. in circumference, which extended branches, resembling bronchi, into the tissue above. Below, this channel ended blindly in the pedicle and had no demonstrable connection with any organ.

The gross appearance and general configuration of the mass immediately suggested it to be lung tissue, and this was further emphasized by the presence in its hilus of an arterial and venous circulation together with the bronchial tree. Furthermore, the surfaces made by cutting corresponded in general appearance and color with those of atelectatic lung tissue of stillborn infants.

Microscopic sections, one of which is shown in Figure 3, revealed a picture of atelectatic lung tissue of the newborn. The lining epithelium of the alveoli was largely desquamated and lying free, an artefact probably produced by incomplete fixation, since preservation of the whole specimen was done before dissection was attempted. The conclusion was, therefore, reached that the specimen illustrated an unusual anomaly in the form of a huge congenital left diaphragmatic hernia associated with a lobe of accessory lung tissue, which lay free in the left pleural cavity, attached only by a small pedicle at its base.

Cooper,<sup>1</sup> in his classic work on hernia published in 1804, was one of the first to describe the diaphragmatic variety. He recognized two types, the congenital and the acquired; and sub-

divided the congenital group into the true and false, the true hernia having a peritoneal sac, and the false none.

Acquired hernias are due to trauma or disease of the diaphragm, and follow such accidents as crushing injuries, stab or bullet wounds. They are not rare in the adult, but are extremely uncommon in children.

Congenital diaphragmatic hernias may be present and obvious at birth or may develop later in life. In the former case, they are likely to be of large size, with a considerable defect in the diaphragm, and they offer little opportunity for surgical treatment. Many of them are found in stillborn infants, and may be true or false, depending on the presence or absence of a sac. Congenital hernias, which develop in later years, are due to the gradual herniation of abdominal contents through an area in the diaphragm, which is weakened by some developmental anomaly, and are frequently not recognized until of large size. These are usually not covered by peritoneum, i. e., are of the false type.

The diaphragm is a musculo-fascial structure with a peritoneal surface below and a pleural surface above. It presents several weak places such as the openings for the transmission of the esophagus, aorta, vena cava and splanchnic nerves, and at the sterno-costal junction anteriorly. The embryological development of the diaphragm is rather complex and thus affords opportunities for the occurrence of areas particularly prone to defects. There may be either complete failure of the segments to meet, or there may be weak areas incapable of withstanding abdominal tension. Thus an actual or potential hernial protrusion may be present at birth. In the failure of the segments to fully complete their union, a space may be left covered only by peritoneum or pleura. When diaphragmatic hernias are present at birth, it is usually through such an opening.

The peritoneal sac is far more frequently absent in diaphragmatic hernias than in the other varieties. The absence of the peritoneal sac constituting the false hernia is probably incidental to the nature of the peritoneal attachment to the diaphragm, which does not permit of its pouching readily as in other hernias, or may possibly be due to the congenital absence of

the peritoneum covering the diaphragmatic defects.

Because of the presence of the liver on the right side, most of these hernias develop on the left. Livingston<sup>2</sup> collected 118 cases, of which 83 were left-sided, 18 were right, 4 were central, 2 were double, and one was complete, due to the complete absence of the diaphragm. The hernial protrusion takes the path of least resistance, passing through one of the various weak places in the diaphragm. The opening for the esophagus is the most frequent site of the hernial protrusion, the aortic opening next.

The contents of the sac vary, depending upon the size of the hernial defect and its location. Almost any of the mobile abdominal viscera may be found above the diaphragm. The stomach, most of the colon, all of the small intestines and the omentum are commonly present in the larger sacs, but the spleen and the tail of the pancreas have also been found.

The frequency of hernias of the diaphragm is difficult to estimate because many of the smaller ones are compatible with life and health, but the number of reported cases would indicate that it is not a rare anomaly. Giffin<sup>3</sup> reports 650 cases, most of which were either congenital hernias in infants, or were symptomless and discovered at necropsy. Solomon<sup>4</sup> collected about 1,000 cases, and many smaller collections have been reported.

There is a remarkable variation in the clinical picture presented by diaphragmatic hernias. A large portion of the congenital ones, including cases in which many of the abdominal viscera were in the chest cavity, have been practically symptomless. One case<sup>5</sup> was reported as a "Dextro-Cardia," without it being recognized that the left side of the chest was practically filled with abdominal viscera. In others, and this applied to the majority of those presenting symptoms, the clinical picture is that of an intestinal obstruction with vomiting, constipation and loss of weight.

Because of the mobility of the median thoracic septum, considerable interference with respiration may be present. Cyanotic spells in childhood resulted in the detection of a dextro-cardia and finally its association with a congenital diaphragmatic hernia. The treatment,<sup>6</sup> when possible, is surgical, but the results are unsatisfactory. The mortality ranges from 40% to 60%,

and in those who survive operation, the incidence of recurrence is quite high. Hedblom<sup>7</sup> reports a recurrence in 12 to 15%.

There have been a number of cases of accessory lungs reported, but they are rare in comparison with the number of other pulmonary anomalies. Up to the present time 34 cases, not including our own, have been described. Of these, only 7 others were associated with a congenital defect of the diaphragm and the herniation of the abdominal contents into the thoracic cavity. In 25 of the 34 the accessory lung was found on the left side; in three it was on the right; and in the others the lung was abdominal or subdiaphragmatic in location.

Of those cases in which the lung was on the right side, in one described by Durch,<sup>8</sup> the accessory lung was situated in the lower part of the right pleural cavity where it lay free except for a short, round pedicle by which it was attached to the angle between the posterior chest wall and the diaphragm. In the second case,<sup>9</sup> the lung was attached to the mediastinal pleura and lay in contact with the esophagus at the level of the tenth thoracic vertebrae; while in the third,<sup>10</sup> the lung lay above the right lung and was connected by a pedicle originating from the trachea.

All of the cases of accessory lungs of the left side above the diaphragm were situated below the normal left lung. They all had pedicles, these having various attachments. Four were connected to the pleural surface of the normal lung, but they contained no communicating bronchial passages, which would permit the entrance of air. The others were usually attached to a pedicle arising from either the pulmonary or systemic circulatory systems.

In the majority of these cases the blood supply came directly from the thoracic aorta, with the venous return to the vena azygos. The nerve supply was from the greater splanchnics. All of the accessory lung tissues were atelectatic.

The etiology<sup>11</sup> of the condition of accessory lung has caused much controversy, but from the consensus of opinion, we find that:

1. Accessory lungs are derived from the embryonic tissue of the "pulmonary groove" of the lung buds.

2. A portion of the embryonic pulmonary tissue becomes adherent to a neighboring part or organ, from which it draws its blood supply



secondarily, and may be separated from the parent tissue and grow independently.

3. Adhesions of the lung bud to the septum transversum covering the liver, or to the wall of the pleuro-peritoneal passage in typical left-sided cases of accessory lungs, may interfere with the normal retractions of the lung bud from the abdomen into the thorax and cause a persistence of the pleuro-peritoneal opening. We are thus enabled to explain the occasional intra-abdominal position of accessory lungs and the association of accessory lungs with congenital defects of the diaphragm of the left side.

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#### BIBLIOGRAPHY

1. Cooper, quoted by L. Frank: *Ann. Surg.* lxxi, March, 1920, p. 280.
2. Livingston: *Holt's Diseases of Infancy and Childhood*, P. 118, 5th Ed. Rev.
3. Giffin, H. Z.: *Ann. Surg.* lv, 1912, P. 389.
4. Solomoni, A., quoted by J. C. Gerster: *Ann. Surg.*, liv, 1911, P. 538.
5. Abt, I. A., *Abt's Pediatrics*: Vol. iii, P. 615.
6. Stein, J. F.: *Surg. Gyn. and Obst.*, xviii, May, 1914, P. 547.
7. Hedblom: *Surg., Gyn. and Obst.*, xxvii, Oct., 1918, P. 383.
8. Durch: *Mund. Med. Wochenschr.*, 1895, xlii, P. 456.
9. Simpson, G. C. E.: *Jour. of Anat. & Physiol.*, xlii, 1907-08, P. 221.
10. Herxheimer: *Centralblatt Path.*, Jena, xxxvi, 1904, P. 529.
11. Cockayne and Gladstone: *Jour. Anat.*, lii, London, 1917, P. 64-96.

#### SOME BOTANICAL ASPECTS OF THE HAY-FEVER PROBLEM\*

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"But doctor, isn't it necessary to make skin tests before taking the serum?" Mr. Williams is the outstanding hay-fever sufferer of a small town in central Illinois. The unfolding leaves and flowers have this early in the season reminded him of his annual period of suffering and sneezing during the dog days, and having heard of a friend who was entirely relieved of his hay-fever last year by pollen treatment, he has consulted his family physician. Until this time, Doctor Blank has justified himself in avoiding such work, but Mr. Williams is firm and insists on "trying the thing out," so there is nothing to do but humor him.

Although the doctor is sure that Mr. Williams' hay-fever is of the ordinary fall type and caused

by ragweed, he agrees to order a test set and proceed according to Hoyle. Doctor Blank is a progressive physician and is aware of the interesting recent developments in "allergy" (the word was barely mentioned in one of his medical classes ten years ago). He realizes that the work has a very definite botanical background, but he is conscious that he has forgotten the little botanical lore he ever knew. With a catalog of pollen tests before him he endeavors to prepare an order and begins by writing "short ragweed"—"giant ragweed." Here he pauses, wishing he had a botanist to help him make a proper selection. Let's help him and while we are at it, let's stay with him while he tests Mr. Williams.

*Selections of Tests.* Until Doctor Blank is ready to launch out in research work or specialize in allergy, he does not need a long list of diagnostic tests. Even though the price of each test is very small, we will not encourage him to buy the "complete outfit" offered to him recently by a salesman. Besides the two common ragweeds which he has already selected, we will advise him to add the other ragweeds of his locality—southern ragweed and cocklebur (yes, cocklebur, a member of the ragweed family). He does not know southern ragweed by name but recognizes a picture of it. There are two or three other important ragweeds in Illinois, but not in this locality. All of them shed pollen about the same time, August 10 to September 30. Next, we select the grasses—timothy and bluegrass, of course, and we may as well have orchard grass and redtop, for they are all common in this locality. Their season is from the last week of May until the middle of July.

"Shall we have sweet vernal grass?" he asks.

"Not unless you expect to have patients come to you from Maryland or Pennsylvania, but it may be well to put in a test of corn pollen, as this is a farming community and in the corn belt."

"We must have goldenrod," says Doctor Blank, "for Mr. Williams is sure he is sensitive to it."

"It will only get you in trouble," we answer, but reluctantly put it down on the list. He notices pigweed in the catalog and we add it with less reluctance.

"And what about rose pollen?"

"Rose fever is a poor joke—on the roses. It is caused by grass pollen."

\*From the botanical laboratories of the Abbott Laboratories.

So we leave off rose and cosmos and daisy and a hundred others that are either not found growing within hundreds of miles of Doctor Blank's office or, if present, are of no clinical importance.

Let us skip over the list of tree pollens as it is extremely unlikely that the doctor will ever need them. The trees pollinate during March, April and May but so far he has never heard of anyone in his community having hay-fever at that time of the year. English plantain has some reputation in hay-fever so we include it and thus round out the list to an even dozen.

*Interpreting the Tests.* A week later Mr. Williams is summoned for his tests and Doctor Blank decides to use the whole dozen pollens on him, regardless of the fact that he has never had hay-fever except in the fall. He ventures to tell Mr. Williams that it is not likely the grass pollens will react, but that he is sure the ragweeds will. The technique of making the tests does not give any trouble, and the difference between positive and negative reactions is easily seen. Mr. Williams is very interested in the results and entirely sold on the whole proposition. He is especially satisfied with the reaction to goldenrod, which he feels is a vindication of his opinion.

At this point, we are called in to explain the meaning of the goldenrod reaction, since Doctor Blank is sure from his reading that goldenrod is not now regarded as a factor in hay-fever. It takes considerable talking to convince Mr. Williams that although goldenrod is a common plant, that it produces pollen only very meagerly and that what is produced is of such a sticky nature that it is not adapted to wind transportation. We assure him that if he lets goldenrod alone, it will let him alone. It reacted because it is closely related to ragweed.

After the patient leaves the office, we sit down with the doctor to discuss the record of the skin reactions. Here they are:

Short Ragweed....4+	Bluegrass .....	—
Giant Ragweed....4+	Orchard .....	—
Cocklebur .....	4+ Redtop .....	1+
Southern Ragweed.4+	Corn .....	2+
Goldenrod .....	4+ Pigweed .....	—
Timothy .....	1+ English Plantain..	—

The doctor looks puzzled. "I think I can understand these ragweed reactions, but what about the 1 plus to redtop and 2 plus to corn?"

"Since the patient has no hay-fever symptoms in June and July, the redtop reaction does not mean anything, except that it might be well for him to avoid excessive exposure to any grass during its flowering season. Since Mr. Williams is a farmer, the corn reaction might be of some importance, if it were not for the fact that he states positively that his symptoms never begin before the 12th of August. Corn is in bloom several weeks before this time and it is therefore not having any practical effect on him."

"Then there is nothing left but the ragweeds and the only question is what to use for treatment," observes Doctor Blank. We explain that of these four members of the ragweed family, it has been found that short ragweed and giant ragweed are the greatest pollen producers. The amount of pollen produced by cocklebur, even under favorable conditions, is quite small. Since it has been found that ragweed sensitive patients are usually sensitive to any member of the ragweed family, treatment with any one of the group will be effective against exposure to any or all members of the family. The doctor finally decides that he will not have a special treatment set prepared but will use the ordinary treatment set of short and giant ragweed.

"It was a long way around to the place where we started, wasn't it?" says the Doctor.

"Yes, but after all, I believe it was worth the effort. Your patient is now satisfied that you have gone to the bottom of his trouble and are on the right track."

*Treatment.* "Now what can a botanist tell me that will be helpful in treating this man?"

"Not a great deal, except the exact time during which you must keep your patient protected. Here in this locality the first blossoms of giant ragweed growing in ditches and river bottoms begin to shed pollen about the first day of August. By the 10th there is enough ripening to begin to contaminate the air. After the fifteenth, look out for a warm windy day. The upper air will drop tons of this material on your county during the last two weeks of August and the first three weeks of September. The heaviest fall may be expected about the first of September, the exact day being determined by the behavior of the wind. Maybe these pollen records for St. Louis and Chicago for 1931 will be useful to you. They are very much alike you see—just about what you can expect here."



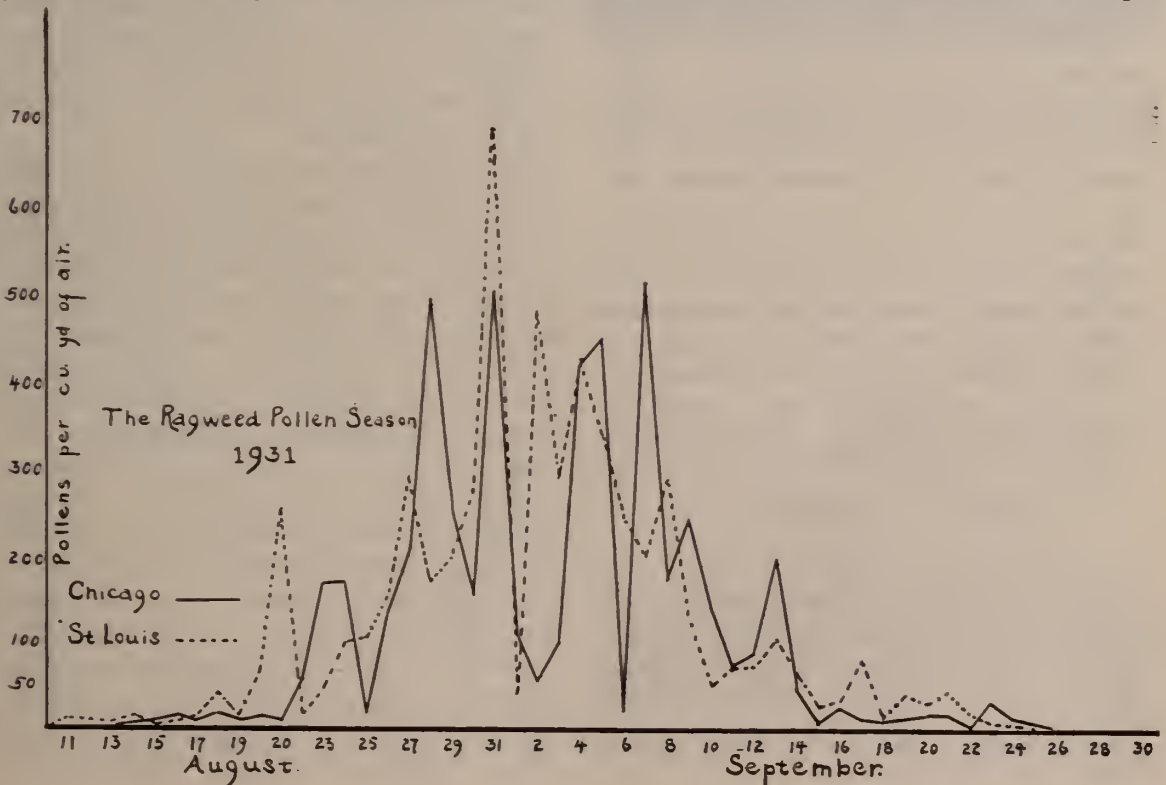
"I shall be glad to have them, but am curious as to the method of securing this information. I had no idea how practical this work is. How would I go about making a pollen survey of this locality?"

*Pollen Surveys.* "The whole purpose of a pollen survey is to determine what plants of the locality are concerned with local hay-fever symptoms, and the relative importance of each of these offenders. The simplest method of doing this is to examine all suspicious weeds, flowers, and trees at the time they are in bloom. If large amounts of pollen can be shaken from the blossoms early in the morning before the wind has carried away the day's output, the plant will merit further study.

"The first step is to identify the plant. For this purpose, one should turn to an authority either in an experienced person or in a good textbook. The best text for this region is Britton & Brown's 'Illustrated Flora of the Northern United States and Canada.' The second step is to determine whether the plant is abundant locally or whether there are only a few stray specimens. If the distribution of the plant is considerable, it will be worth while to learn as much as possible about its habits of growth and pollination. This requires field observation all

through the growing season. It is of the utmost importance to know the exact date on which each kind of pollen may be expected to contaminate the air and how long it continues to do so.

"The great difficulty with field observations is the lack of quantitative data. It is easy to over-estimate or under-estimate the relative importance of a plant. To obtain a true check on what pollens are being inhaled in a given locality it is necessary to study the pollen content of the air. A very simple method of air sampling which has been in limited use for many years has in the last few years been found a valuable aid in air study. It consists of exposing oil coated glass microscope slides in a horizontal position usually for 24-hour periods. These slides are usually placed on a window-sill on top of a building. They catch all pollen granules settling out of the air. At any convenient time they may then be examined under low-power magnification and both differential and quantitative determinations made. This leaves no guess work as to the relative amount of each kind of pollen floating in the air at the place and during the period the slide was exposed. All physicians who are specializing in allergy do more or less slide counting. It enables them to check up on local conditions around a patient's home or to keep a



complete record of the fluctuation of the pollen content of the air."

"What pollens are there in the air here now?"

"Mostly tree pollens. My Chicago slides at this time of year catch large amounts of oak, and some hickory and walnut pollen. Now and then there is a little from the docks and plan-tains and some harmless pine pollen from no one knows where."

"How far can pollen travel?"

"I have found small amounts that certainly had been blown at least 200 miles. Last summer we exposed slides from airplanes over the middle of Lake Michigan and over the land beside the lake and found 85% as much pollen in the air over the lake, 30 miles from shore as there was over the land. It all depends on the wind and weather.

"These figures for St. Louis and Chicago are from my national pollen survey. During the last several seasons, uniform exposures have been made for me throughout the ragweed season in all of the important cities of the United States and Canada by the local observers of the United States Weather Bureau and the Canadian Meteorological Service. With the information gained from these slides, we now have a very accurate national picture of the pollen season, the pollen districts, and the pollen crop. In the Midwestern area, there are a number of summer and fall plants of minor importance in hay-fever, but throughout the central and eastern states during the fall season, fully 98% of the deposit on these slides is ragweed pollen. Illinois is of course, in the middle of the Ragweed Belt.

"Thus, the air research parallels and controls the field research. Both methods are necessary in solving the botanical problems on which depend the success of all hay fever treatment."

#### THE USE OF IODIZED OILS IN BRONCHITIS AND BRONCHIECTASIS\*

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The correct diagnosis of chest conditions has become infinitely better since the first introduction of the x-ray. Refinements in the technique, quality of films, etc., have given increasingly

more detail. However, even these advances left some undiagnosed or misdiagnosed conditions to be revealed by the post-mortem. Many errors are due to the difference in opinion concerning the lung markings as to whether they are shadows cast by normal bronchi, dilated bronchi, vascular changes, or small areas of infiltrations. With the introduction of radio-opaque substances and their use in lung radiography more accurate diagnosis and more satisfactory therapy has become possible.

With the introduction of this valuable aid in diagnosis many cases of chronic bronchitis and bronchiectasis heretofore diagnosed as tuberculosis are correctly diagnosed and treated. Bronchiectasis per se is not an especially common clinical state. It is in the strictest sense an anatomical state with symptoms. Lord states there were only 38 cases among 3,183 autopsies at the Boston City Hospital. However, its significance is not thus properly evaluated in comparison to all other disease processes, but should be considered in its relative frequency in all thoracic conditions. I have not been able to obtain figures in this connection but feel that it probably is either second or third in frequency of infectious processes of the lower air passages. It is obvious that to correctly diagnose early bronchial dilatation and differentiate this from tuberculosis and by means of proper therapy prevent true bronchiectasis it will be of greatest benefit to the patient.

It is of interest that the use of radio-opaque substances in pulmonary affections is not new. In 1905 Chevalier Jackson used bismuth oxide to insufflate the tracheo-bronchial tree through the bronchoscope, later changing to bismuth subcarbonate. Jackson still frequently employs this method. In 1915 Stewart accidentally observed iodoform and bismuth in the bronchi of a dog upon which esophageal experimentation was being conducted. In repeating his work it was observed that the media passed into the bronchi through an esophageal-bronchial fistula and that the opaque substance enabled the visualization of the respiratory passages without irritation to these tissues. Iodine was first used clinically by Yankhauer in 1917 when he applied this to bronchiectatic cavities through the bronchoscope. Various other workers subsequently employed iodine, bismuth, or other radio-opaque sub-

\*Read at meeting of Jackson County Medical Society at Carbondale, Ill., April 21, 1932.



stances, but either because of the mortality of the experimental animals, or the unsatisfactory roentgenographic visualizations these substances and methods were not adopted. In 1922 Lipiodol was first introduced by the French, Sicard, Forestier, and Leroux. Lipiodol is a stable compound of 40 per cent. iodine in poppy-seed oil. Most of the pictures I am showing tonight are those in which a new product, Iodochorol, developed in the research laboratory of G. D. Searle and Company, has been used. In this oil peanut oil forms the base. The iodine content is 27.5 per cent. and in addition it contains 7.5 per cent. chlorine. As the action of the iodine and chlorine may be complementary this combination may cast a better shadow than iodine alone. The oil is a clear yellow color, has a specific gravity of 1.290 at 15.5° centigrade and has a relative viscosity of 103.01. It is the only iodized oil to which a flavoring oil has been added to increase the palatability; it also is the only light stable iodized oil and can be exposed in a glass container to diffuse light for three weeks or longer and to direct sunlight for as long as two weeks without there being any change in the oil. There are numerous other iodized oils such as Iodopin, a German product, and Iodumbrin, a Danish product. I have found that Iodochlorol is a comparatively non-irritating product; palatable, has no unpleasant after effects, requires no heating before use, although is heat stable, and is of proper viscosity to reveal the desired anatomical condition of the tracheo-bronchial tree. In this connection clinical work confirmed by animal experimentation at the Massachusetts General Hospital is of great interest. It was found in the Thoracic Service that many apparent lung abscesses as revealed after the use of 40 per cent. iodized oil were in reality areas of "drowned lung"—drowned in the iodized oil. The experimental work confirming this was done by bronchoscopic instillation of the oil in normal dog lungs. It was therefore evident that weaker solutions of the iodized oil must be used to avoid these false pictures. Should the viscosity of Iodochorol be so high that terminal bronchioles are not filled it may be diluted with an addition of three or four cc. of olive oil without impairment of its radiopacity.

Before considering the methods of instilling the oil it would be well to briefly state the clinical

picture of bronchiectasis. The etiology may be congenital. Sauerbruch and Willy Meyer, as well as others, adopt this view. However, few of these cases are diagnosed during life and if they are there, symptoms and treatment are no different from the other form. The dilatations in these cases are frequently to the degree of cyst formation. The acquired types divide themselves etiologically into those due to primary mechanical interference with the normal air cur-



Fig. 1. Case of chronic bronchitis, the result of war gas showing the diffuse mottling with Iodochlorol in the distal portions of the bronchi and the heavy coating of the oil along the walls of the larger bronchi and relative clarity in the center.

rents as in the aspiration of foreign substances with the secondary infection upon a weakened bronchial wall; those due primarily to infection which secondarily produces the changes in the bronchial wall, and those due to fibrotic traction from without the bronchial wall. Again the symptoms in these types are identical once the dilation and infection are present. In addition to the well-known relationship of the acute respiratory diseases with cough to chronic upper respiratory infections, Kistner reports that in all but 6 of 196 cases of non-tuberculous bronchitis there was an associated sinus infection. Jackson and Clerf of the Jackson Clinic report "a large number" of cases of chronic bronchitis and bronchiectasis as confirmed by bronchoscopic exami-

nation to have been associated with upper air passage infection.

Pathologically bronchiectasis is a dilatation of the bronchi which may be: 1. cylindrical, 2. fusiform, 3. saccular in which the various layers have undergone inflammatory and retrogressive changes. The condition may be unilateral or bilateral, is usually found at the base and is more frequently left sided. Sauerbruch reports



Fig. 2. Case of subacute bronchitis associated with asthma showing probable obstruction (a) which was relieved with instillation of Iodochlorol with resultant symptomatic improvement.

that approximately 90 per cent. of bronchiectasis is in the left lower lobe. The reason for the lower lobes being involved is rather apparent from the obvious possibility of stasis of the retained secretions. Duken claims that the reason for the left lower lobe involvement lies in the fact that the left bronchus comes off at a more acute angle than the right and is crossed by the pulmonary artery which causes a slight constriction. The mucosa may be atrophic or hypertrophic but an increase in the total mucosal surface; also there are round cell infiltrations of the stroma and muscularis, destruction of the elastic laminae, calcification, and a retention of purulent secretions.

Clinically there may be the congenital type as mentioned, the acute type due largely to the

influenzal type of infections and to various gases, and the chronic type. The symptoms vary in degree dependent upon the area of involvement and the duration of the condition but consist essentially of the following. The history of previous respiratory infection or aspiration of a foreign body is of great significance. There is more or less persistent cough present which is aggravated greatly by postural changes and exertion. This is usually more or less paroxysmal in nature, occurring most frequently on arising and is relieved by the expectoration of more or less purulent sputum. The sputum varies greatly in amount, odor, and physical character dependent largely upon the type of organisms found. Hemoptysis occurs in 50 to 70 per cent. of cases and incidently bronchiectasis is the second most common condition associated with this finding. There seldom are severe constitutional symptoms but frequently the patient complains of weakness, ready fatigue, and various vague symptoms which only too frequently brand the individual as a neurotic. The physical findings are frequently very mild in view of later radiographic findings but when present consist of a more or less impairment in respiratory excursion of the affected side; slight dullness when the bronchiectatic cavities contain their secretions or slightly increased resonance when empty; alterations in the breath and voice sounds depend upon these same factors; rales, varying from soft crackling rales to large bubbling rales, and pulmonary osteo-arthritis which may consist merely of clubbing of the fingers or include an enlargement of the bones of the leg and forearm and an effusion into a joint. Bacteriologically the sputum contains the usual organisms of respiratory infections, streptococci, staphylococci, pneumococci, *B. influenzae*, and very commonly the spirochaeta of Vincent and the fusiform bacillus. When the latter two organisms are present we usually find very foul and copious amounts of sputum. The radiographic findings and particularly the study following the introduction of an iodized oil reveal the dilated bronchi.

Obviously in the diagnosis one must differentiate other pulmonary infections, most particularly pulmonary tuberculosis. In out and out cases of bronchiectasis the diagnosis is not difficult; however, in the early stages or in chronic



bronchitis the diagnosis is not so simple. In favor of tuberculosis one must remember that intensive examination of the sputum will in well over 80 per cent. of cases reveal the tubercle bacillus. In the absence of this, guinea pig inoculation with the sputum will give a positive test of the presence or absence of tuberculosis. Further, the preponderance of right sided apical lesions, constant elevation of temperature, more pronounced constitutional symptoms, x-ray findings of hilum or parenchymal involvement will lead to a diagnosis of tuberculosis. The determination of pulmonary abscesses is less simple but also of less importance in distinction from bronchiectasis because of the close similarity in the therapeutics in these allied cases. However, the more septic course, the more definite localization of physical findings and the finding of elastic fibers in the sputum will lead to a diagnosis of abscess which can be substantiated by roentgenography. Most important of all is to diagnose these cases early. Ochsner found in a group of apparently normal young university students, who complained of a persistent cough or recurrent attacks of cough, with or without sputum in whom a diagnosis of "chronic bronchitis" had been made that 92 per cent. showed definite bronchial dilatation on bronchography.

The treatment of these cases of chronic bronchitis and bronchiectasis has been largely unsatisfactory, although the prognosis as to life after the initial diagnosis is good in spite of heretofore insufficient or misdirected therapeutics. Until comparatively recently surgery has offered the most satisfactory results but these frequently not justifying its generalized application. Without tending to minimize the benefit of surgery in the well selected case I will merely mention the various surgical procedures of pneumothorax, operations upon the phrenic nerve, thoracoplasty, surgical drainage of the bronchiectatic cavities, and lobectomy. Medically the various steps may include one or more of the following: postural drainage; drugs to attempt diminution in the amount of the sputum, alter the odor and facilitate its expulsion; climatic changes; vaccine therapy; and the injection of iodized oils. It is this latter which I wish to discuss in greater detail.

Before using this procedure one should be familiar with the possible dangers of the various

methods employed; the danger, if any, in the introduction of the oil; and the possible errors in the interpretation of the x-ray films. From the standpoint of the anesthetic employed the only danger is that of cocaineism which possibility one must admit in the use of this drug in any individual sensitized thereto. Therefore, the procedure should never be attempted without being prepared to counteract such a condition with adrenalin. The possibility of introducing further infection as a result of carrying organisms down with the oil and also the spread of the infective process by the production of further irritating cough must be considered. Archibald and Brown consider these potential dangers as well as the possibility of the oil having a plugging action and thus reducing the vital capacity. However, as large series of experiments have been conducted on experimental animals both normal and those with respiratory infections without noting any new or extension of old processes, these dangers are probably only potential. In poorly selected cases the introduction of the oil may cause considerable decrease in vital capacity causing marked dyspnea, cyanosis, possibly syncope, and right heart failure. Ballon and Ballon call attention to the effect of iodized oil upon normal and diseased pulmonary tissue. In the normal lung there is no evidence of subsequent inflammation or fibrosis, which statement is substantiated by numerous other workers, but the retained oil may at a later examination closely resemble a tuberculus process without there being any symptoms or physical signs arising. Therefore, it is of great importance in the roentgenological examination to be very careful to elicit a history of previous examination with iodized oil. This iodized oil has never been visualized at more than ten day intervals. No untoward effects have been reported from the use of these substances in non-specific conditions such as lung abscess, bronchiectasis and empyema. On the contrary, there is a distinctly harmful effect from the use of these substances in acute tuberculosis. There is a marked tendency towards a more widespread involvement and extension after the use of the iodized oil. Because of the congestion surrounding all the acute processes these oils should never be used in acute respiratory infections. Personally, I never use the oil in the presence of fever until the

cause of the fever has been satisfactorily located. Also, in cardiac disease with any tendency toward pulmonary passive congestion, or right heart failure the use of these oils is contraindicated. It is further contraindicated in active h moptysis, angina pectoris, and aneurysm. Occasionally cases of iodism have been reported. For the most part the reactions are confined to skin manifestations and rhinitis and in themselves are of no serious import. Obviously susceptible individuals should not be subjected to this treatment.

The various methods of introducing the oil into the bronchi are: 1. Supraglottic described by Pritchard, White and Gordon. The pharynx and larynx are first sprayed with butyn or cocaine, the tongue is drawn forward and the oil is injected directly into the larynx by specially devised cannula. Here the cannula does not enter the trachea.

2. Transglottic: Following complete anesthesia as above a laryngeal cannula is introduced into the trachea through which the oil is passed into the respiratory passages.

3. Subglottic or transcricothyroid: This consists of inserting a needle through the cricothyroid membrane after thorough skin and deeper anesthesia with novocaine. Care must be taken to be sure that the needle is in the trachea, which is simply done by aspirating air through syringe.

4. Intratracheal: In this method a two barrel catheter is passed directly into the trachea, one barrel through which the oil is passed, the other through which the patient breathes.

5. Aspiration: Here the oil is passed through a straight cannula attached to a 20cc syringe directly into the larynx.

6. Bronchoscopic: This method is advocated by Jackson and Ballou as well as others and allows the aspiration of pus from the cavities to be treated and permits of direct visualization of the infected area.

7. Passive inspiration: As this is the method which I have followed I will quote directly from Ochsner's own description of the technic: "It consists of anesthetizing the anterior pillars of the pharynx, which abolishes the swallowing reflex. Because of the abolition of the swallowing reflex, swallowing is impossible, and the larynx, which normally rises during deglutition

to lie beneath the epiglottis and the base of the tongue, remains immovable." The details of this method are:

Ten per cent. cocaine is applied to the anterior pillar and the base of the tongue until the swallowing reflex has been abolished; then the tongue is firmly held and pulled forward and from 3 to 5 cc. of 2 per cent. novocaine is slowly poured on it and allowed to flow into the pharynx whence it will be passively aspirated. This generally induces coughing and produces expectoration of sputum. Should the patient have a marked cough reflex or be particularly nervous one-sixth to one-fourth gr. of morphine sulphate may be given hypodermically 15 minutes preceding the instillation. Following the introduction of the novocaine, cocaine is again applied to insure complete anesthesia and then the iodized oil is poured onto the tongue and allowed to enter the respiratory passages.

A single flat plate should always be made preceding any method of filling and in all methods it is well to do the original filling under the fluoroscope. This will show that the oil passes freely to the bifurcation and there towards the affected side and give proper filling of the infected area. If the cough reflex is not marked so that there is no danger of the patient bringing up the oil it is my opinion that one should wait at least five minutes before the stereoscopic films are taken so as to allow ample filling of terminal bronchi and alveoli. One important aspect in regard to the radiographic exposure after the instillation of the iodized oil is to lower the kilovolts and increase the time, in order to insure contrast, which makes the detail more clearly visible.

In addition to the diagnostic value of iodized oils I wish to call particular attention to the therapeutic value of these "fillings." Most patients who are so treated for diagnostic purposes noted symptomatic relief and from this observation many observers have adopted repeated instillation of iodized oil as an effective measure in the therapy of chronic bronchitis and bronchiectasis. Although the oil itself is not germicidal, as has been shown by plating inoculated oils in agar it has been shown by Ochsner and others that sputum examinations following the use of



these oils revealed usually a progressive decrease in the bacterial content. The reason for benefits derived are probably manifold, but most important probably is that the heavy, stagnant secretions are emulsified and more easily expectorated, the mucosa undergoes slight irritation with a tendency towards establishing normal new epithelial cells both structurally and functionally, and possibly the iodine itself within the body exerts some benefit. To bring out the clinical benefits derived from this therapy may I cite some typical case histories, representing different clinical pictures and thereby indicating the varying possibilities permitting of the use of the iodized oil.

Case 1. H. M., male, aged 41 years, gassed in France during the world war. Cough and purulent sputum present ever since. Cough most severe about noon followed by expectoration. Repeated coughing spells subsequently and during the night. Is in public life making frequent addresses which are interrupted because of cough. Has marked susceptibility to upper respiratory infection. Physical examination revealed a deviated septum with a chronic rhinitis, and numerous rales at the base of the left lung associated with harsh breath sounds. Repeated sputum examination failed to show tubercle bacilli or the spirillum of Vincent and fusiform bacillus. Roentgenograms after the instillation of Iodochlorol (Fig. 1) showed early bronchial dilatation but no sacculation. After this diagnostic filling the patient reported there had been a complete absence of cough for 3 days. On the fifth day he was again coughing although less severely. A therapeutic filling was done. The patient has had 14 fillings in 9 months during which time he went through a severe attack of influenza. He reports that he feels more fit, has little or no sputum, markedly diminished cough and in general feels better than any time in 13 years subsequent to the onset.

This case is an example of similar ones described by the French following gassing although in this country the commonly accepted opinion is that war gasses have had little relation to chronic pulmonary disease. It is typical of these cases that the iodized oil remains fairly adherent to the walls of the larger bronchi and only imperfectly fills the terminal bronchioles.

Case 2. L. F., female, aged 32 years, giving history of an acute respiratory infection lasting five weeks, associated with fever, slight wheezing, noisy respiration, and "chest tightness." These attacks have been repeated at least one time yearly and with each attack have necessitated more frequent injections of adrenalin. Cough is particularly severe at night and associated with abundant sputum, marked perspiration, and chilliness. Physical findings consisted of dullness and impaired respiratory sounds in both lower lobes; crackling

rales in the right lower lobe. She was admitted to the hospital two days later where x-ray examination with Iodochlorol revealed findings of incipient bronchiectasis and other findings suggestive of a purulent bronchitis (Fig. 2). For five hours subsequent to the filling there was no cough but when the patient first expectorated she brought up a bronchial plug about 2 inches in length which was immediately followed by complete relief from all sense of chest discomfort. Subsequently the patient has had two fillings with Iodochlorol at ten day intervals during which time she has had complete freedom from wheezing. She has gained four pounds in three weeks; was running a normal temperature, and the cough and sputum has been reduced to practically nil. This case exemplifies the very practical benefits to be derived from the use of iodized oil in aiding to control the progress of early bronchiectasis associated with bacterial asthma.

Case 3. H. M., male, aged 47 years, first seen in July, 1927, giving a history of surgical interference for lung abscess twenty years ago following which there has been more or less cough, foul sputum, and attacks of dyspnea. There are acute flare-ups of this chronic condition associated with fever and symptoms of toxemia. Physical examination revealed a well developed white male with a typical barrel shaped chest, short shallow respirations, loud bubbling rales throughout the entire left side. There is an associated marked osteo-arthritis. The sputum averaged from 8 to 10 ounces daily and was markedly foul so that the odor permeated the entire room. The patient was treated medically with iodides and arsenicals on and off for five months so that in February, 1928, he returned to work. Since that time he has had mild attacks of the acute condition returning but he had no serious break until January, 1931. At that time he complained of a marked increase in the amount of sputum, the odor again was very bad and he felt very toxic. He was given 10cc of lipiodol which was followed by a marked cough, feeling of rawness in the air passages, slight elevation in temperature so that he feared a second filling. The condition became symptomatically more severe until he presented himself in August, 1931, for a second filling. The following six weeks he had six instillations of Iodochlorol without untoward reactions. At the end of that time he reports a complete absence of odor, very little sputum, and only about one paroxysm of coughing daily. He maintains his weight at about 200 pounds and has not missed a single day of work in the past year. This case is classical and certainly one which should give each one of us the necessary optimistic view necessary to apply a new and harmless therapeutic agent in these heretofore hopeless cases.

Case 4. Male, aged 70 years, giving a history of repeated upper respiratory infection more or less severe but which in the past have always necessitated a change in residence to a warmer and drier climate during the late winter and early spring months. In February, 1931, this patient developed a typical broncho-pneumonia

and because of an associated myocarditis he had a rather protracted convalescence. There was more or less persistent cough with a clear white frothy sputum every morning until he was treated with Iodochlorol with three fillings at ten day intervals in June, 1931. He felt much better, reported his cough to be practically gone, and remained in fairly good health until March, 1932. This time he was seen at the onset of an acute respiratory infection and was treated medically so that the symptoms were aborted. However, a very disturbing and exhausting cough particularly severe in the early morning persisted, so that he was again given an Iodochlorol filling which has now been repeated five times, and the patient is up and around with his normal strength and ability. To my mind this individual represents and portrays the prophylactic value and symptomatic relief to be derived from the early use of iodized oils in warding off, or controlling the cough and sputum of the acute flare-up in chronic bronchitis.

#### CONCLUSIONS

1. I have tried to recapitulate briefly the history of the introduction of iodized oil in broncho-radiography and its clinical application in the therapy of chronic bronchitis and bronchiectasis.

2. Without wishing to in any way minimize the surgical benefit that may be obtained for some of these patients the series of cases reported by Ochsner and my own experience in the treatment of these cases with iodized oils have proven beyond a doubt that unless some of the designated contraindications exist all non-tuberculous chronic bronchitis and bronchiectasis patients should be given the benefit of this mode of therapy.

3. In my report of the therapeutic effects I call particular attention to an American product, Iodochlorol, which, as I stated, meets the necessary requirements for its use in radiography and has given me excellent results in the therapy of my cases. Incidentally, it may be mentioned that this product may be purchased at approximately two-thirds or less of the cost of the imported iodized oils.

4. The examples I have cited are only typical of others being treated in a similar manner and represent four different types of bronchial involvement any of which are common to all of us in our practices. Although the benefits these four display are not uniform in all cases of bronchial infection, I cannot urge you sufficiently to give your patient the benefit of this means of early diagnosis and possibly prophylactic

therapy. We can safely say that in the vast majority of cases we may safely prognosticate symptomatic relief by the use of iodized oils, and in the properly selected case have absolutely no fear from their use.

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#### BIBLIOGRAPHY

- Alexander, J., and Buckingham, W. W.: Treatment of non-tuberculous suppurative pneumonitis, abscess, and bronchiectasis. *J.A.M.A.* 95:556, 1930.
- Archibald, E., and Brown, L. A.: Dangers of introducing iodized oil into the tracheobronchial system. *J.A.M.A.* 88:1310, 1927.
- Ballon, D. H., and Ballon, H. C.: The effect of injection of lipiodol and the rate of its disappearance in normal and diseased lungs. *Canad. M.A.J.* 17:410, 1927.
- Idem.: Value of bronchoscopic injection of lipiodol (iodized oil) in diagnosis and treatment. *J. Laryngol. and Otol.*, 44:153, 1929.
- Blankenhorn, M. A.: Diseases of the respiratory system. *Nelson's Medical Service, Survey of Literature*, Jan. 1, 1925 to July 1, 1925, p. 1076-1079.
- Bonnamour and Bodelle.: Bronchial dilatation in men who have been gassed. *Acad. de méd.*, 99:235, 1928.
- Clerf, L. H.: Bronchiectasis associated with disease of the nasal accessory sinuses. *Arch. Otol.*, 6:28, 1927.
- Gant, J. C., and Harvey, J. L.: Diagnosis and treatment of bronchiectasis with lipiodol by passive method. *Colorado Med.*, 27:185, 1930.
- Hartung, A.: Bronchiectasis—what the use of iodized oil has demonstrated relative to diagnosis by ordinary roentgen examination. *Am. J. of Roentgen. and Radium Therapy*, 22:120 (Aug.), 1929.
- Hoover, C. F.: Bronchiectasis. *Oxford Medicine*, Vol. II, Part I, p. 19.
- Jackson, Chevalier: Tracheo-bronchoscopy, Esophagoscopy, Gastrostomy. 69:1907. p. 69, 1907.
- Idem.: Bronchoscopic observations on the cough reflex. *J.A.M.A.* 79:1399, 1922.
- Landis, H. R.: *Nelson's Loose Leaf Medicine*. Vol. III, p. 446, 1920.
- Lilienthal, Howard: Thoracic Surgery. Vol. II, p. 80, W. B. Saunders and Co., 1925.
- Lord, F. T.: Diseases of the bronchi, lungs, and pleura. Lea and Febiger. Philadelphia, 1925.
- Mainzer, F. S.: Bronchiectasis; Diagnosis and Treatment. *Amer. J. of Surg.*, Vol. 11:1, p. 93 (Jan.), 1931.
- Mattice, E.: Lipiodol in treatment of bronchiectasis. *U. S. Vet. Bur. M. Bull.*, Vol. 5, 1929.
- Meyer, Willy: *Trans. Amer. Surg. Assn.*, 32:592, 1914.
- Ochsner, A.: An unappreciated cause of chronic bronchitis. *J.A.M.A.* 93:188 (July 20), 1929.
- Idem.: Bronchography following the passive introduction of contrast media into the tracheobronchial tree. *Wisc. Med. J.* Vol. 25:11, p. 544, 1926.
- Idem.: Bronchiectasis. *Amer. J. Med. Sc.*, No. 3, 1929, p. 544 (Nov.) 1926.
- Idem.: Use of iodized oil in bronchiectasis. *S. Clin. North America*, 10:843, 1930.
- Pritchard, S., Whyte, B., and Gordon, J. K.: Conclusions regarding the technic following one thousand intra-tracheal injections of iodized oil in adults. *Radiology* 8:104 (Feb.), 1927.
- Sauerbruch: Quoted by Ochsner.
- Stiehm, R. H.: Treatment of bronchiectasis with lipiodol, with report of 19 cases. *Wisc. Med. J.* 29:556, 1930.
- Swann, W. C.: Discussion of lipiodol in bronchiectasis. *West Virginia M. J.*, 26:337, 1930.
- Tabern, D. L.: Technic for introduction of radio-opaque oils. *Clin. Med. and Surg.*, 39:4 (Apr.), 1932.
- Turner, G.: Diagnosis and treatment of bronchiectasis by injection of iodized oil. *Southwestern Med.* 12:206, 1928.



## PERSONAL HYGIENE\*

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Personal hygiene translated into simpler language is the art of keeping in good health. When we speak of personal hygiene we refer to the rules of life, which every person must follow to keep himself or herself in a healthful and comfortable condition. By adhering to the principles of personal hygiene you will not only add years to your life, but will make those years more worthwhile living.

The danger of transmitting disease is greatest just at its beginning. The danger signs of illness are, sore throat, sore eyes, headache, cold, fever, diarrhea, or rash. Very frequently communicable diseases are ushered in by headache and fever. A disease is much easier to handle if treatment is begun early.

Nearly all acute diseases and many chronic conditions are caused by harmful, minute organisms, commonly called germs. These germs may be transmitted by direct contact, through the lungs, the mouth, or through the skin. Many diseases are caused by organisms visible to the eye, such as worms, and lice. Flies, fleas, and mosquitoes are the carriers of some disease organisms.

It is a very good practice to wash the hands before meals. In this way we prevent carrying germs that we may have on our hands to the mouth or nose.

In Chicago we are fortunate in having so pure a water supply, but wherever there is doubt, water should be boiled, for it is a carrier for such diseases as dysentery, "diarrhea," typhoid and paratyphoid fevers, and many others.

Coughing and sneezing should be done in the protective walls of a handkerchief, for through the air one may spread the causative organisms of influenza, pneumonia, tuberculosis, tonsillitis, scarlet fever, measles, mumps, diphtheria and meningitis.

Certain diseases are caused by transmission of the disease-producing organisms through the skin. An example of this type is the injection of germs in the bite of a mosquito. Malaria and yellow fever are transmitted in this fashion. Typhus and trench fever are carried by the bites

of lice; and the flea is the carrier of the microbe causing the bubonic plague.

Some diseases are caused by merely getting the germs on the skin, which later burrow deeper. Smallpox, chicken-pox, ringworm, and common itch are spread in this way. In certain localities "hook-worm" is contracted by walking barefoot over soil containing the newly hatched eggs of hook-worm.

The spread of disease may be prevented by cutting off all avenues by which disease germs escape from the body of a sick person. Dishes should be washed in hot water and with soap. All coughing and sneezing should be done into a handkerchief. All expectorated matter, discharges, and excreta should be burned.

Quarantine is one of the best methods for preventing the spread of communicable diseases, especially among children. All right-thinking people should not only never object to the imposition of quarantine restrictions, but should encourage them.

Many persons carry disease germs without being actually sick. These persons are known as "carriers" and are very dangerous to those about them. Cooks, bakers, waiters and waitresses, butchers and all other people who handle food should be examined frequently to rule out the possibility of being carriers of the organisms causing diphtheria or typhoid fever.

Certain diseases can be prevented by vaccination or inoculations. All persons should be vaccinated against smallpox, and all children if susceptible to diphtheria, should be injected with toxin-antitoxin.

Care in the selection of food, and in the selection of eating places cannot be stressed too much. Avoid eating in places that are not strict about their cleanliness. Dirty kitchens are great spreaders of disease. Remember also that food poisoning, commonly known as ptomaine poisoning, may often be caused by meat hash, fish, sausage, or other foods which have putrefied due to inadequate refrigeration. In eating take time to chew your food thoroughly. Hasty eating and swallowing half-chewed food are the chief causes of digestive disorders.

Cleanliness is not only next to godliness, but also next to health. Frequent bathing and frequent washing of hands helps remove disease germs. However, in bathing avoid walking barefoot on bathroom, swimming pool, or gymnasium

\*Radio talk given over WGN for Educational Committee, Illinois State Medical Society.

floors; or exchanging bath slippers or towels, for these are the ways in which ringworm of the feet, commonly called "athlete's foot," is contracted.

We have never heard anyone boast about the comfort and pleasure of infected teeth, absence of teeth, or even false teeth. It, therefore, behooves us to try to preserve our teeth as long as possible by keeping them clean. Brushing once or twice daily and at bedtime is a good rule to follow. This prevents the breeding of germs and decay of teeth.

Avoid coming in contact with producers of disease. Keep away from sick persons. Sleep under mosquito netting, wherever mosquitoes are abundant. Destroy flies, fleas, and cockroaches. Wherever and whenever necessary prevent breeding places for flies by keeping food containers closed, and keeping all receptacles for garbage and other refuse covered. Avoid public drinking cups, as their edges are covered with germs left by everybody's mouths. For the same reason do not exchange pipes, musical instruments played by mouth, handkerchiefs, shaving outfits, powder puffs, and other toilet articles.

Hardly any of us have never had a "cold," and in nearly every case that "cold" was due to unnecessary exposure. We must be especially careful in wet weather not to get ourselves wet. When clothing or shoes become wet, change them as soon as possible. Sitting around in wet clothes or with wet feet is almost certain to give you a "cold" or a worse disease.

I may also add never drink when overheated after exertion.

Who can say how many of us have suffered from corns, bunions, sore and aching feet, and various degrees of flat-foot, and yet all of these could have been prevented by wearing properly fitted shoes and by seeking medical advice at the first sign of trouble.

In conclusion let me say that the rules of health are based on simple natural principles, which may be summarized as follows:

First—Keep up your resistance to disease by getting sufficient sleep, rest, and proper food.

Second—Avoid disease and do away with nuisances to health, and breeding places of disease.

Third—Utilize the methods for preventing disease that scientific research has discovered for us, and take advantage of medical advice at all times.

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## CERVICAL PHLEGMON WITH OSTEO-MYELITIS OF JAW FOLLOWING LOCAL TONSILLECTOMY

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Mr. E. F. consulted me on August 8, 1931, with the following history:

Ten days previously he had a local tonsillectomy performed at one of the larger clinics in Chicago. No particular difficulty was noticed by the patient at the time of operation. Bleeding was slight. Four days following operation he experienced difficulty in opening his mouth. Five days later he noticed a swelling of the neck just below the angle of the jaw. He consulted his family physician, who advised external heat.

I saw the patient in consultation two days later. At this time the patient was unable to open his mouth more than about one-half inch. A firm very tender swelling was noticed just below the angle of the mandible on right side. This swelling extended downward considerably and upward sufficiently to obliterate the parotid space. No evidence of fluctuation was noticed at this time. The patient complained of very severe pain over this area and he looked very sick. Examination of the tonsillar fossae did not reveal any bulging or abnormality.

External heat and irrigations with hot water inside the mouth over angle of mandible were used the next day.

An horizontal external incision about one inch long was made the following day over the center of the swelling. Gas anesthesia was used. A very large amount of thick, foul smelling pus was liberated. A drain was inserted.

Cultures of the pus showed a mixture of organisms, i. e., staphylococcus, streptococcus, fusiform bacilli and spirilla. No one organism was predominant.

The patient seemed to progress nicely for four days following drainage when one evening patient had a severe chill and his temperature rose to 104 degrees Fahrenheit. Acute tenderness appeared over the descending ramus of the mandible on the right side. X-ray of the lower jaw did not reveal any pathology at this time.

The wound continued to drain for the next five weeks and another x-ray was made of the mandible. A large sequestrum involving the ex-



ternal plate of the descending ramus of the mandible was visible at this time. It was thought best by the oral surgeon to wait three more weeks before removing it. Three weeks later the sequestrum was removed by simply enlarging the original incision. The sequestrum measured  $3\frac{1}{2}$  cms. in length and  $2\frac{1}{2}$  cms. in width.

The wound stopped discharging within one week and was completely healed in ten days.

The trismus disappeared a few days later.

This case is the second of its kind reported in the literature. The other case was reported by Hochfilzer of St. Paul, Minnesota, in the *Archives of Otolaryngology*, XII; 177; 1930. In this report there was no mention of which plate of the mandible was involved.

I am reporting this case for several reasons:

First, because of its rarity. There are more than one hundred cases of reported cervical phlegmon following local tonsillectomy, but only one other case reported in which cervical phlegmon following tonsillectomy was accompanied by osteomyelitis of the jaw.

Second; because of the involvement of the lateral plate of the mandible, one would naturally expect the internal plate of the mandible to be involved.

Third, because of the fact that this patient had two roots of the lower first molar in the right side present for months before the operation. A discharge of foul pus was present constantly from this source. I believe that this was the causative factor in this complication and it argues for a more careful examination and technique in performing local tonsillectomy.

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#### REFERENCE

Hochfilzer, St. Paul, Minn.: *Archives of Otolaryngology*, XII; 177; 1930.

### OSTEOMYELITIS OF THE ILIUM

EMIL JONAS, M. D.

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Osteomyelitis of the ilium is a rather uncommon disease. It is very difficult to handle and there is very little to be found in literature on the subject. Considerable search by A. Rendle Short in the literature published on this subject during the last thirty years has yielded very meager results.

A case was reported in 1916 by J. B. Murphy which was secondary to a furunculosis. Another case was reported in 1930 by Ryan and Funston, which was probably tuberculous.

At the Russian Surgical Congress in 1925 at Leningrad Krasnobajiv reviewed 428 cases of osteomyelitis treated in twenty years. There was a general mortality of 22.4 per cent. Twenty patients had osteomyelitis of the ilium; that is, 5 per cent. of the total number. Of these twenty,



Fig. 1. X-ray of ilium showing lipiodol injected into the fistula, and a small sequestrum close to the sacro-iliac joint. The tip of the metal catheter shows lateral to the ilium.

eight died. We would therefore conclude that this disease is more dangerous than diseases of the long bones.

In acute osteomyelitis of the ilium there is pain in the buttock one to several days, which gradually becomes worse. There is probably no known focus. The patient often thinks he has strained his back. In the case which we observed there was a furuncle of the knee. The patient had fallen on his buttock previously, so that he had established a *locus minoris resistentiae*. There follows severe, even violent, pain, which may or may not be relieved by opiates, a rise of temperature, and there develops a marked tenderness over the *dorsum ilii*. The ages of the patients reported by Short were 14 and 23. Our patient was 38.

After observing the symptoms described, if the surgeon now recollects that there is such a disease as osteomyelitis of the ilium, the diagnosis is comparatively simple.

The course of the disease is apt to be long and severe, with numerous complications, both early and late, and with considerable danger to life. Fortunately our case had no complications.

It suppurated to the exterior by a fistulous channel and drained externally for over ten years.

The treatment in the acute condition is very difficult. Opiates give little or no relief. Everybody is anxious that something be done to relieve the tension. Operation does relieve the tension, but for the next few days the patient will be very ill. In my opinion, opening the cancellous tissue by removing the outer layer did relieve the tension and allay pain, but precipitated symptoms of pyemia, by opening up the veins in the cancellous spaces to infection. There is nothing abnormal to see, so one does not know how much cortex to remove. It therefore seems better to cut down to the periosteum under local anesthesia, in the hope of finding pus and put in a drain.

The case which we observed is a man 38 years old, occupation, butcher. He states that his trouble began about 13 years ago when he suffered a fall on his buttock while carrying a pail of lard. He was then confined to the hospital for five months, and x-rays taken at that time showed a fracture of the ilium. A year later a sinus opened to the exterior and discharged a fluid appearing like pus. He states that he has no pain or limp since then. Under closer examination for determining a probable focus of infection he remembered that he had a furuncle on the left knee three months previous to his fall.

During the past 12 years he has been variously diagnosed at different clinics. At one clinic he was told that it involved the hip joint and that nothing could be done for him. However, there was no deformity and rotary movements of the femur were painless. He had no limp or pain on walking. We injected the sinus with lipiodol and by x-ray observed that it led down to the crest of the ilium. There was no involvement of the hip joint and a sequestrum was observed (see Figure 1).

Under general anesthesia the sinus was cut out, a sequestrum 1x0.5x6 cm. was removed and one iodoform gauze drain was inserted. There was a slight excretion of serum from the wound for three days and then the wound spontaneously closed.

Through mechanical trauma it is possible, as in this case, that the site of injury could become a site of locus minoris resistentiae and could be attacked more easily by the presence of staphylococcus in some other focus. Through the blood

stream this traumatized area was attacked by the staphylococcus and an osteomyelitis developed.

It is shown by experimentation with animals that if staphylococci are introduced and artificial fractures are produced, many small abscesses are developed in the bone marrow, followed by periostitis where staphylococci could be easily demonstrated. Thrombosis develops, not enough nutrition is present and bone necrosis results. (Askanasy.) Often bone spots develop in which staphylococci could be present for many years or even decades. If latent, the bone may even simulate tuberculosis or syphilitic bone pathology. (Askanasy.)

Conclusion: In chronic osteomyelitis of the ilium with a sinus tract it is advisable to introduce a catheter and inject a radio-opaque substance such as lipiodol for determining where the sinus leads. Then only a simple operation of cutting out the sinus tract and removing the sequestrum is necessary. It is essential that the surgeon should keep outside of the sinus tract so that no granulation tissue might be left in the wound which could be a focus for staphylococci.

#### BIBLIOGRAPHY

- Bowler, J. P. and Boardman, J. J.: *Staphylococcus Septicemia with Metastatic Osteomyelitis*, New Eng. J. Med. Feb. 14, '29, 200: 327-329.
- Cabot: case 15012, *Osteomyelitis, Multiple Gunshot Wounds, Chronic Osteomyelitis of the Femur and Ilium*, New Eng. J. Med., Jan. 3, '29, 200: 33-38.
- Holmes, A. H.: *Osteomyelitis of the Ilium, Acute*, Brit. Med. J., Sept. 19, '31, 2: 533.
- Krasnobajiv: *Navy Chir. Archiv.*, 1925, 354.
- Murphy, J. B.: *Surgical Clinic*, Philadelphia, 1916, Vol. 751.
- Ryan, C. A., and Funston, R. V.: *Osteomyelitis (Probably tuberculous)*. Case report, *J. Bone and Joint Surg.*, Jan. '30, 12: 165-167.
- Short, A. R.: *Osteomyelitis of the Ilium, Acute*, Brit. Med. J., Sept. 19, '31, 2: 533.

#### THE DETECTION OF ALBUMIN IN CLOUDY URINE\*

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The Heller nitric acid contact test is perhaps the one used most frequently for the routine detection of albumin in urine. The interfering substances may be classified as:

1. Urea or uric acid. These when present in high concentrations may give rise to a false posi-

\*From the Clinical Laboratory of the Chicago Free Dispensary, the Chicago Medical School.



tive. This, however, is easily recognized and may be circumvented by a preliminary dilution of the specimen.

2. Bile salts or thymol. The former occurs only in an icteric urine and the latter, if it has been added as a preservative, may be removed by organic solvents.

3. Cloudiness, such as that due to bacteria, to amorphous urates in suspension or both. Such urines are not readily clarified by centrifugation or ordinary filtration, and they form a large percentage of those urines which are brought in by patients coming from some distance. This class is the most troublesome, inasmuch as the fine particulate matter makes it difficult to decide whether or not an albumin is present.

At the Chicago Free Dispensary, we have found it advisable to execute the following routine albumin test on such urines:

- 1. About one cc. of nitric acid is overlayed with an equal quantity of urine—the regular Heller test.
- 2. In the event that the cloudiness interferes with the reading of the test, the urine and nitric acid are mixed by agitation, urates and bacteria are both digested and the contents of the tube become clear.
- 3. The mixture is overlayed with about one cc. of 20 per cent. sodium hydroxide solution and allowed to stand.

If albumin is present, a precipitate of syntonin

(acid albuminate) will appear at the point of contact and spread through the alkali layer. Uric acid and bacteria residues give no ring.

The sodium hydroxide solution is chosen of such strength that its refractive index is near that of the nitric acid urine mixture. The absence of a visible liquid junction facilitates the reading of any precipitation which might occur.

The albumin test thus performed is slightly more sensitive than the unmodified Heller test as shown in the table.

The precipitate formed by the presence of bile salts is only momentarily dissolved by nitric acid to reappear as scintillating crystals resembling those of benzidine sulphate. The “ring” due to thymol is dissolved by agitation with the nitric acid, but upon stratification with the alkali, a green contact zone becomes evident. Consequently, the test is not applicable to urines containing either of these substances.

CHILD STUDY AND THE  
PEDIATRICIAN\*

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In a recent publication Brennemann<sup>1</sup> voices the sentiment of pediatrics in a thoughtful but emphatic protest against the mixture of rubbish, fantasy and truth instilled into the lay mind by the combined teachings of psychiatry, behaviorism, child study and the like. Such protest finds ready endorsement by all of us pediatricians who find our daily work handicapped by the ignorance or egotism of neurasthenic mothers misled by a few laboratory scientists dealing with hypothetical children. The absurdity of some of these teachings has led many a pediatrician to scoff at the whole child study movement and to refer to it with disdain. Brennemann’s article has been misinterpreted by many. He offers no objection to the sane and logical study of the mental and physical development of the child. He does object to certain unproven psychiatric theories being delivered directly to the laity without being subjected to the criticism and control of

TABLE

Concentration of Albumin in Urines	Heller Ring Test	Modified Heller Test
0.05%	Positive	Positive
0.025	Positive	Positive
0.01	Positive	Positive
0.0075	Positive	Positive
0.005	Positive	Positive
0.001	Trace	Positive
0.0005	Negative	Trace
Urines with, 1% Uric Acid in Suspension		
Concentration of Albumin in Urines	Heller Ring Test	Modified Test
0.05%	Positive	Positive
0.025	Interference	Positive
0.01	Interference	Positive
0.0075	Interference	Positive
0.005	Interference	Positive
0.001	Interference	Positive
0.0005	Interference	Trace
Bacterial* Suspension in Urines		
Concentration of Albumin in Urines	Heller Ring Test	Modified Test
0.05%	Positive	Positive
0.0025%	Positive	Positive
0.01	Interference	Positive
0.0075%	Interference	Positive
0.005%	Interference	Positive
0.001	Interference	Positive
0.0005	Interference	Trace

\*Suspensions of Proteus Vulgarus, Staphylococcus Aureus and Bacillus Coli were used.

\*From the Sarah Morris Hospital for Children of the Michael Reese Hospital, Chicago.

1. Brennemann, Joseph: “The Menace of Psychiatry,” Am. Jour. Dis. Child., 1931, 43:376.

those with extensive experience in practical pediatrics.

It seems to me that much confusion in the past has arisen in the failure to understand what the child study movement really is and to distinguish it from the various fads and pseudo-sciences with which it is confused.

*What is child study?* The name is almost self-explanatory, the Chicago organization being called "The Chicago Association for Child Study and Parent Education." The child study movement consists of a loosely bound national organization with local groups in various cities who in turn organize subgroups. All subgroups have independence and may develop their own studies as they wish. If assistance is required, the board of directors of the central organization of that city provides a worker or leader especially trained in the subject. It will be seen that the whole movement is in the hands of the laity and that they are seeking information from whatever source available. If the doctor refuses to cooperate or is incapable, then he must assume some of the responsibility resulting from relegating this work to others.

*Comparison with Infant Nutrition.* One who has served many years on the battlefield of pediatrics must see some similarity between the evolution of infant nutrition and of child study. What royal battles were waged concerning the advisability of the percentage system of feeding! The bitter fights about classifications, about calories; the theories of Czerny and of Finkelstein, the hysteria of standard height and weight charts! During these years what confusion! How many young medical men barely out of college projected themselves before the public, giving learned advice to lay audiences. I remember addressing some young women's organization as to the relative merits of Finkelstein and Czerny. What knowledge they must have taken home with them! Those were the days when to attend the Pediatric Society was a pleasure. The meetings were hot with bitterly contested debates. For forty years the medical men themselves individually and collectively disagreed as to the merits of any particular method of feeding. And the atmosphere was heated by far better oratory than knowledge. But the chaos of forty years ago has become the order of today. The various weird theories and extreme

ideas have become so subordinated to common sense that now the practice of infant feeding is simple and the problems of the future clear.

Presumably the child study movement is undergoing similar evolution. Unquestionably much basic good has been accomplished. But, like infant nutrition, the original contributions have been expounded by medical men of all types and varied experience, and again handed down by good, bad and indifferent teachers to lay audiences more or less capable of understanding their true significance.

*What shall be the attitude of the pediatrician to this movement?* Shall it be of scornful disinterestedness? Far better that he familiarize himself with what has been accomplished. Let me enumerate a few points which have proven of definite assistance to me in the conduct of a pediatrics practice.

One of the essentials in the child study movement is the instruction of the parent that the child is an independent human being. The ramifications of such an idea are innumerable but medically, as I have seen it, the idea can be divided into:

(a) Teaching the parents the necessity of the child's independence.

(b) Teaching the importance of a calm, peaceful atmosphere of the home.

Of the innumerable illustrations as to the importance of the child's independence, the classic is "anorexia nervosa." Here the child suffers from loss of appetite as a normal reaction to the attitude of a nervous mother who continually forces an over-feeding from her own misunderstanding of newer nutritional studies. How many doctors are still hopelessly prescribing tonics to stimulate the stifled appetite? Not medication but education is needed. Unfortunately, may I remark parenthetically, this type of parent is often incapable of being educated, but maybe another decade of education will accomplish more.

How often is the pediatrician consulted about the whining baby, the baby who cannot learn to eat from a spoon, the "mama" baby, the nervous, high-strung infant who cries out in his sleep often developing anorexia, the child who is not understood, the child who is on his way to a chorea? Here the treatment lies not in tonics and bromides, but in correcting the environment.



What is needed is education, education of the parents as to the importance of environment, the importance of calmness and equanimity in the household, the importance of a firm and consistent attitude toward the child. If cross, be cross all the time. If gentle, remain gentle but always be firm. Nothing is more destructive to a growing child than sudden changes in the mental attitude of the parents; from hysterical sentimentality and bribery one moment to bitter tirade and punishment the next. If child study has done nothing else, it has justified its existence by trying to teach parents the importance of a consistent attitude to their children. It has emphasized the importance of a positive rather than a negative point of view. It has taught us that we should lay stress upon what Johnny should do and not handicap him and heckle him with the continual "don'ts." Carrying this idea to the field of medicine, a very valuable hint comes to the treatment of enuresis by our emphasizing to Johnny the importance of having a *dry bed* instead of constantly nagging and reminding him of the *wet one*.

As a corollary to the calm, firm and positive attitude comes the importance of establishing good habits. At an early age Johnny can be taught to blow his nose and to sneeze into a handkerchief instead of deluging his baby brother. He can be taught to brush his teeth, to keep himself clean and to observe various other habits that help in safeguarding health. But he also can be taught mental habits, the habit of doing his share of work, of accepting responsibility and of developing the various traits that go to build up character.

One of the great contributions of the child study movement is to teach the parent and physician as well the necessity of overlooking certain symptoms previously considered pathological. How valuable it is to possess the knowledge that practically all infants and children go through certain cycles and recover spontaneously. What terror did masturbation and thumb sucking in infants inspire ten years ago! Or again, during later development, comes the time when the infant wants to handle everything within reach. Then comes the "I won't" stage. Then school with its profanity and probably first lewd words. Then maybe lying. What earnest consultations

were held concerning these symptoms between parents and their physicians and often what ridiculous and worthless remedies were offered. An extremely fortunate bit of knowledge tells us that these are all cycles in the normal development of the child.

Much verging on lunacy has been written concerning sex. But the modern idea is certainly the best. There is no objection to the parent telling the child the truth within the limits of its experience and its ability to comprehend. A four-year-old will accept with surprising equanimity the fact that when he was very small he developed inside and was nurtured by his mother. Perhaps he will remark to school mates once or twice about "when I got borned," but then his interest becomes casual if every time he asks a question he receives an adequate answer. Compare the gradual acquisition of knowledge this way to the ludicrous situation some ten years ago when the perfectly helpless father and mother would draw you aside and pointing furtively to their fifteen-year-old son, would say, "Doctor, Johnny is getting old enough now to know a little about sex. Can't you take him aside some day and give him some instructions?"

The pediatrician is consulted as to how a child should be punished. The punishment should be immediate and "to fit the crime." Delayed punishment is worse than useless when the child is small, for he soon forgets his misdemeanor and wonders what it's all about. The punishment should approximate that of real life. If a child is annoying in the presence of company, simply insist on his leaving. "Johnny, you are making a nuisance of yourself and we don't want you around." If still refractive, he can be removed to a remote room. If he is around the camp fire and refuses to assist in gathering wood, instead of slapping his face the logical punishment would be to say, "Those who don't work, don't eat." In an older child, bed-wetting may lead to an attempt at treatment by punishment. Here the logical procedure would be not spanking and nagging but orders for the culprit to wash the sheets.

The advent of a second baby may cause a host of symptoms in the older child. What frequently leads to a disordered household, irritated parents and a baffled physician is now overcome by education. The advent of the newcomer neces-

sitates intelligent treatment of the first child. From a position of monopolizing all of the affection of relatives and friends, through no fault of his own he is suddenly thrust into obscurity. No wonder that he uses every device in his power to regain his lost parents. At such times the parents must be particularly careful to demonstrate to their little one that he still occupies a large share of their affections and that he himself must assume a certain interest and responsibility for the newcomer. Intelligence of parents smooths away many difficulties at such times which cannot be controlled by the attending physician.

It is not the purpose of this article to defend any of the weird psychiatric theories that have been advanced during the recent years, nor is it to urge further education of the laity by teachers with only theoretical knowledge of highly disputed and technical problems; it is simply to remind the pediatrician that the child study movement is new and that it, like infant nutrition, may undergo a decided evolution. It is to urge him to take cognizance of this new movement, and to assimilate what is good and essential, so that he may be equipped to answer intelligently questions that are asked him and to refute much of the nonsense that is being promulgated.

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## RADIUM TREATMENT OF CERVICAL CANCER IN AMBULATORY PATIENTS

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In most of the large clinics of the world where expert surgical technic and radium are equally available, surgery has been abandoned in favor of radium in cancer of the cervix.

There are many factors that enter into the prognosis of this disease, the chief of these being: 1. The extent of the tumor, 2. The clinical type, 3. The histologic type, 4. Certain local and general conditions, 5. Lastly and of great importance—the radium technic.

The extent of the tumor.

This is one of the most important factors in the prognosis. In 1929, the cancer committee

of the League of Nations divided cervical cancer into 4 groups, depending on its extent.

Group 1. The cancer is limited to the cervix; uterine mobility is retained.

Group 2. The cancer involves the cervix and the adjacent vaginal wall or parametria; uterine mobility is diminished.

Group 3. The cancer involves the cervix and the periuterine tissues are extensively infiltrated; the uterus is fixed.

Group 4. Neighboring viscera are invaded or distant metastases are present. Sometimes it may be difficult to determine in just which group the individual case should be placed.

Groups 1 and 2 naturally offer by far the most favorable prognosis.

The clinical type.

The *vegetating* form, while more terrifying in appearance, is more amenable to radium than the *ulcerating* type. The *sclerosing* form, which causes a retraction of the periuterine tissues and narrowing of the vaginal vault, is the least likely to yield good results.

The histologic type.

*Epidermoid* cancer furnishes the greatest number of recoveries. Cancers composed of *transitional* cells come next in the frequency of clinical cures.

*Adenocarcinomas*, which form only about 3 per cent of cervical cancers, are the least amenable to radium.

Local and general conditions.

Malformations, severe uterine infections, diabetes, and some other conditions influence the prognosis unfavorably.

The extent of the tumor and the radium technic are the two most important factors affecting the prognosis.

Grouping all cases together, under good and bad radium treatment, there are about 20 per cent of 5-year clinical cures. We believe these figures may be vastly improved by treating cases earlier and especially by improving the technic. We wish, therefore, to discuss some of the various ways of using radium.

1. Shall radium or radon be used?

In giving intrauterine treatment for cervical cancer, radon has the great advantage of being much less bulky. We believe the cervix should never be dilated as long as active carcinoma is present. Radon can be introduced in a tube so



small that cervical dilatation is unnecessary. Radon has the same advantage in making applications to the lateral fornices, although here the necessity for a small applicator is not so pressing.

2. The use of small quantities of radium such as 50 milligrams has been advocated.

The application of small quantities of radium for long periods of time is based on the theory of increased sensitivity of the cancer cell during mitosis.

If this were the only factor to be considered, the small dose technic would be more valid. We believe, however, that the application of radium for long periods of time to metastasizing cancer of mucous membranes is a mistake because of the traumatism and increased danger of metastasis.

When one of us was in Paris 20 years ago observing the work of Wickham and Degrais it was noted that oral cancer, while often benefited, was not cured. The strongest applicator used at that time contained about 25 mg. of metallic radium.

Wickham ascribed the poor results in oral cancer to the use of too small quantities of radium which required very long applications. The weight of the filters then in use and the unavoidable rubbing of the growth with the applicators seemed to facilitate metastasis to the lymph nodes.

It can hardly be doubted that the same process may take place in cervical cancer, although it may not be detected because of the deep situation of the pelvic nodes. We have gradually come to believe, therefore, that the use of large quantities of radon of the order of 1000 mc. is very desirable from the standpoint of greatly diminishing the time of application and thereby reducing the danger of metastasis.

### 3. Dilatation of the cervix.

It frequently happens that the cervical canal is obscured by the cancer. It is then impossible to introduce a tube of radium into the cervix without a great deal of traumatism to the growth. We believe, therefore, intracervical treatment should be delayed until treatment against the cervix has rendered it patent. Even if the cervical opening can be identified in the beginning we are opposed to the common practice of dilating the cervical canal. Dilatation

cannot but add to the danger of dissemination by opening up lymph spaces.

4. Some operators have advocated the daily insertion, withdrawal and replacement of the intracervical applicator for 5 successive days. We believe the dangers of serious infection are tremendously increased by this method.

If the cervical canal has been invaded once, further intrauterine treatment should be delayed for at least 2 weeks.

5. Implantation of radium needles in the cervix or parametria.

We believe the implantation method of treating cancer should be limited to small and well circumscribed lesions, which experience has shown cannot be treated successfully by surface irradiations.

In dealing with a markedly infected field such as cervical cancer, the implantation method is not without danger. A number of deaths have been reported from implantation of radium needles in this situation due apparently to infection. We limit the implantation method, therefore, to the occasional treatment with lead radon tubules of small nodes in the cervix which may very rarely persist after the usual cycle of treatment has been given and the field is relatively sterile.

### 6. Dosage.

Some technicians recommend 5,000 or more mc. hours to the interior of the cervix. Unfortunately, dosage is not standardized but we regard this dosage as excessive. We have come to believe that a dose of 1,800 mc. hours should seldom be exceeded inside the uterine canal where the radium applicator lies practically in contact with or a few mm. distant from the mucous membrane. Even this dose is only given when the intrauterine applicator is 7 cm. long. With shorter applicators the dose is slightly decreased.

We prefer to give the necessary additional treatment—about 2,000 mc. hours—by “cross firing” the cervical growth from both lateral fornices. Some patients require, later on, an additional 1,000 mc. hours against the cervix. The location and contour of each individual tumor must, of course, be taken into consideration in planning the dosage.

*Technic.* In examining suspected cervical cancer we advocate the gentlest methods possible.

It is needless to say that we always biopsy the lesion by a clean incision which is allowed to bleed slightly.

We believe it is inadvisable to test the mobility of the uterus by pulling it down with the tenaculum forceps.

Sufficient information on this point can be gained by very gently moving the speculum slightly back and forth in the axis of the pelvis while the cervix is in view.

We believe it is futile to give preliminary douches in an endeavor to "clean up" the field prior to irradiation. We are opposed to curetting or cauterizing the growth as being harmful and unnecessary.

Our method of attack is by surface irradiations against and within the cervix with a large quantity of radon held gently but firmly in position for a minimum of time.

We believe cervical cancer should be attacked with a maximum primary irradiation by the "selective" method. Nothing is gained and patients may be seriously injured by frantic efforts to destroy the growth too quickly by the "cauterizing" action of radium. If the cancer can be kept *in situ* it may be cured. If it already has extended or is made to extend to the lymph nodes by injudicious treatment clinical cure is unlikely.

The cervix is exposed very carefully with a long bivalve speculum. The anterior blade of the speculum measures 11.5 cm. in length; the posterior, 13 cm. We have had made a special gold plate 4 mm. thick, which fits and reinforces the posterior blade and protects relatively the rectum.

An applicator containing 1,000 mc. of radon is grasped with an 8-inch rat-toothed forceps and placed carefully against the cervix or in one lateral fornix.

Formerly we removed the speculum and forceps and packed the applicator in place with gauze. For a number of years we have made a practice of leaving the speculum and forceps carrying the radon *in the vagina* during the entire irradiation which lasts about fifty minutes. A T-binder holds the speculum and forceps carrying the radon firmly in position. We believe this method of holding the radon against the cancer causes a minimum of traumatism and it

was with this in mind that our technic was gradually developed.

In a few days a second irradiation is given against the cervix or in the other lateral fornix.

In the course of a few days or weeks the cervical canal, if obstructed by the growth, becomes patent and the opening comes into view. We then attack the tumor from another portal, i. e., by way of the cervical and uterine canal. The radon is contained in a flexible lead tube which holds from 2 to 5 standard enameled silver radon tubes. The flexible lead radon tubes for intra-uterine irradiation were described in a previous article.<sup>1</sup> These lead tubes are made in different lengths so that the whole uterine canal may be irradiated. Being only 4 mm. in diameter, they can be introduced into the uterus as easily as a sound.

Six hundred mc. contained in 3 radon tubes, arranged tandem, may be left in the uterine canal for about 3 hours. The pelvic girdle may be irradiated in the usual way with the radon bomb and x-rays but it is difficult to determine how much this type of irradiation influences the final result.

One of the points we wish to emphasize in our technic is that patients are *ambulatory* and usually continue their daily occupation while under treatment. Patients too far advanced for curative measures should receive only palliative irradiation.

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#### BIBLIOGRAPHY

1. Simpson, F. E., and Flesher, R. E.: A new uterine screen and introducer for inserting Radon Tubes into the Uterus, *Journal of American Medical Association*, April 3, 1926, Vol. 86, No. 14, p. 1005.

#### HEMATOSALPINX AND PYOSALPINX IN A CHILD

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Salpingitis is very uncommon in young children and in a review of the literature only four cases have been reported during the last 20 years.

Burk<sup>1</sup> in 1926 reported a case in a child five years old who made a recovery following a bilateral salpingectomy and appendectomy, apparently for a gonococcal salpingitis. Richter<sup>2</sup> at the Cook County Hospital operated upon a nine-year-old girl for appendicitis and found a bilat-



eral salpingitis, which proved to be gonorrheal in origin. Joannides<sup>3</sup> in 1926 reported a case in a six and a half year old girl who recovered following a bilateral salpingectomy and appendectomy. The condition was of gonorrheal origin. Farr<sup>4</sup> in his analysis of 545 cases of salpingitis states that disease occurs in persons as young as 11 and as old as 60 years, and out of this series only one case was 11.

From the above report and others (<sup>5, 6, 7</sup>) all the cases reported were apparently gonorrheal in origin, while our case as far as we can prove was not gonorrheal. A diagnosis of salpingitis and peritonitis was made and an exploratory laparotomy performed. The child made an uneventful recovery.

**Report of Case:** A girl 10 years of age was brought to Edgewater Hospital on August 16, 1931, by her attending physician, Dr. Hesser, with the following complaint: Pain over entire abdomen which began four days before entering hospital and had been almost constant in character. There was no relation to the taking of foods or any influence by posture. Nausea, immediately followed by vomiting began after the pain and has persisted until time of admittance, when patient was markedly dehydrated. The entire abdomen was tender, rigid and distended.

**Past History:** Usual childhood diseases, appendectomy and tonsillectomy. Menses began about six months ago, having been regular and painful only for first day, lasting about 3 to 4 days. Appendectomy was performed when child was four years of age. Child was in 7th grade at school and as far as could be determined was well-behaved and was always at home with her parents. Her playmate was a young girl about her own age.

**Family History:** Mother and father alive and well. No history of tuberculosis, diabetes, cancer, or insanity in family. No brothers or sisters.

**Physical Examination:** As stated above the child was acutely ill, temperature 100.5, pulse 130. R. B. C. 4,580,000, W.B.C. 20,550, polymorphonuclear 85%. Urinalysis—no albumin, no sugar, no casts, 4-5 R. B. C. to high power field. Head and neck normal, chest, no râles or dullness. Heart, regular tones, no murmurs.

**Abdomen:** Distended, rigid, painful and tender throughout, but more marked over right lower quadrant. There was an old scar over right rectus muscle. Reflexes were normal.

A diagnosis of peritonitis was made and at first it was thought, perhaps it might be an old perforation of an appendiceal stump. A rectal examination was made and a tender mass palpated in the right cul-de-sac. A vaginal examination was attempted and only admitted a finger with considerable difficulty and pain,

as the hymen was intact. Smears and cultures taken from the vagina and urethra were negative for gonococci. A small speculum was introduced into the vagina and the cervix brought into view, was free from discharge. Nevertheless, smears and cultures were made directly from the cervix, which also were negative for gonococci.

The child was more than well-developed for a 10-year-old girl; sex characteristics were already present, the breasts were prominent, pubic hair had developed and she began to menstruate at the age of nine. A diagnosis of peritonitis was made, secondary to salpingitis. An exploratory laparotomy was decided upon.

**Treatment:** 1500 cc of normal saline subcutaneously with glucose as she was dehydrated from the vomiting, which was almost continuous. Under ethylene gas a mid-line incision was made, and as we opened the peritoneum, a large amount of bloody and seropurulent fluid filled the abdominal cavity. This was aspirated and the cecum brought into view appeared normal and revealed a normal appendiceal stump. As we began to explore the pelvis a large tubal mass on the right side presented itself about 6" long and 1½" in diameter, friable, of deep dark brown, almost black in appearance and attached to the uterus. The tube had twisted itself about so that its diameter only measured about ⅛" at the fundus uteri. The tube was severed at this point. The left tube was removed. It appeared only slightly larger than normal and was filled with creamy pus. Both ovaries were left intact. Two rubber drains inserted; and although child had a few stormy days, she made an uneventful recovery and was discharged on the 10th day.

#### *Pathological Report:*

**Gross Description:** One tube enormously enlarged, measured 12 cm long by 5 cm in diameter. It was distorted, filled with blood clots of recent origin. The opposite tube measured 8 cm long, 5 mm. in diameter and the serosa was congested. From the fimbriated end thick yellowish white pus oozed freely.

**Microscopic Description:** Tube—the fimbria and muscularis were infiltrated with round cells and polymorphonuclears. Opposite tube—markedly thickened and layers separated by extravasated blood cells; blood vessels numerous and engorged. Smears reveal no gonococci or tubercle bacilli.

**Final Diagnosis:** Chronic Salpingitis Hematosalpinx.

#### COMMENT

This case as far as we could prove was not gonorrheal in origin. Infection probably was brought on by masturbation, producing a chronic salpingitis. The tube on the right side had the appearance not unlike an ectopic pregnancy which had become twisted, associated with hemorrhage and beginning gangrene. The left tube had all the appearances of sub-acute salpin-

gitis of suppurative character. Cultures and smears were negative for gonococci.

### REFERENCES

1. Burke, Garry R.: Double pyosalpinx in a child 5 years J.A.M.A. Vol. LXXXVII, p. 31, 1926.
2. Richter, H.: Abt's Pediatrics, 3,568.
3. Joannides, Minas: Bilateral gonorrheal salpingitis in child 3 days after ureteral infection J.A.M.A. LxxxVL, p. 1518, 1926.
4. Farr, C. E. & R. T. Findlay: Salpingitis detailed analysis based on study of 545 cases, Jan., 1914, to Dec., 1927, Inc. S.G. & O. 647-62, 1929.
5. Chaffey, W. C.: Pyosalpinx in child. Path. Soc. London 361-303, 1884-1885.
6. Cheatle, A. H.: Case of double pyosalpinx in a child of one year and nine months old. Lancet 2: 1098-1891.
7. Constensaux, G.: Peritonite tuberculuse dousecutive a'une double salpingite chez une enfant d'une an Bull. Soc. Anatomy de Paris 72. 859-1897.

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### PONTINE HEMORRHAGE IN YOUTH

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Brain hemorrhage is comparatively common. In 7942 consecutive autopsies by Herxheimer and Schulz<sup>1</sup> hemorrhage of the brain was found in 215 (2.7 per cent.). The most of these (179) occurred in patients with hypertension. In 149 the kidney showed no more serious damage than some degree of arteriolosclerosis "essential" or "primary" hypertension.

Brain hemorrhage associated with an appreciable destruction of kidney parenchyma ("renal" or "secondary" hypertension) is quite rare. Herxheimer and Schulz in their series of 179 brain hemorrhage cases saw only four instances of secondary hypertension with rupture of a blood vessel into the brain. Baer had only four such cases in 100 autopsies on brain hemorrhage with hypertension.

According to the postmortem findings apoplexy can be due to disease of the vessel itself as from an artery weakened by arteriosclerosis, luetic mesarteritis or mycotic aneurysms or it may be due to a disease of the surrounding brain tissue as in tumor formation, encephalitis or encephalomalacia.

Schwartz<sup>2</sup> and C. Bohne<sup>3</sup> subdivide hemorrhagic lesions of the brain into four groups: 1. those associated with one softening of the brain due to local arteriolosclerotic changes (thrombosis group); 2. those due to emboli orig-

inating from distant organ (embolic group); 3. compact hemorrhages, and 4. (mixed group) those due to other causes: tumors, aneurysms (congenital, mycotic including nodose polyarteritis, encephalitis, etc. J. Collier adds to this mixed group injury during birth or following concussion, hemorrhagic pachymeningitis, poliomyelitis, sinus thrombosis, abnormal blood states (leukemia, etc.) and anthrax. One may also mention the lesions of Duret, recently studied by O. Berner,<sup>4</sup> whooping cough hemorrhages, toxic hemorrhages, without completing the list of possible causes.

Of the 78 cases examined by Bohne,<sup>5</sup> 47 were due to thrombosis, 10 to embolism, 7 were "compact" hemorrhages and the remaining 14 comprised tumors, aneurysms and encephalitis.

Hypertension is an important factor in brain hemorrhages. It is present in half of the thrombosis and embolism cases and in all the cases of compact hemorrhage.

Only a short discussion of softening is pertinent here. Softening is due to partial or complete obstruction in an artery. The location and the shape of the lesion correspond to the area supplied by the arterial branch. When white substance is involved the softening is usually white. When gray substance is involved the softening is usually red, hemorrhagic. The areas of softening are frequently multiple.

A rupture of a larger vessel produces the picture of "compact hemorrhage." In this type there is no loss of the brain substance. The brain structures are simply pushed aside by the extruded blood. Compact hemorrhages are always single and are rarely combined with softening. They do not correspond to the area of distribution of an artery. They are more or less dry. The outline of the hemorrhage is ragged and frayed and is surrounded by a hemorrhagic zone due to local disturbances of circulation. Ruptured small arteries can be found but it is difficult to decide whether these arterial lesions caused the hemorrhage or are caused by the hemorrhage.

Compact hemorrhage is the usual type in "putamenclaustrum" apoplexy, pontine hemorrhage involving the arteriae medianae pontis as in our case, and in cerebellar hemorrhages.

This type is to be distinguished from hemor-



rhages involving the arteriae medianae pontis as seen in softening following arterial occlusion.

Age has an important relation to apoplexy. Of 179 "hypertensive" brain hemorrhages of Herxheimer and Schulz, 6 were between 30 and 40 years of age, 27 between 40 and 50, 44 between 50 and 60, 54 between 60 and 70, 36 between 70 and 80 and 8 over 80. They had no cases younger than 30.

The possibility of rupture of an anatomically intact vessel as a result of secondary or even primary hypertension is admitted by few. The mere fact of rupture makes preceding changes in the vessel wall presumable. Changes in the vessels in the hemorrhagic area consequent upon the extravasation of blood into the brain have been described and are attributed to ferments present in the free blood.

Our case is reported because it is apparently an instance of rupture of a practically normal vessel by excessive arterial tension.

Our patient, a woman 25 years old, entered the West Suburban Hospital in deep coma. She died two hours after admission.

Excepting for severe illness with "flu" in 1918, she had always been well. Two years before her entrance into the hospital her physician performed an abortion because of finding persistent albumin and casts in her urine associated with a mounting arterial hypertension.

Occipital headaches had been frequent before her death. She had recently complained of poor vision. Without more premonition she became unconscious in a moving picture show.

We (E. F. T.) saw her two hours after the onset of coma. She was moderately well nourished but pale. She could not be aroused. Stroking the soles of her feet caused her to pull up her legs. Respiration was stertorous. She was vomiting. Her eyes were staring and not focussed. The left pupil was slightly smaller than the right. Both were dilated and did not react to light. Bilateral hemorrhagic uremic retinitis was present. The pulse was 100, regular and strong. The B. P. was 200/100.

The neck was not rigid. The examination of the chest was obscured by the loud deep breathing but the heart borders were within normal limits and there was no dullness of the lung fields. The liver and spleen were not palpable. The extremities were blue and cold. There was no edema. The catheterized urine contained large amounts of albumin and a profusion of all varieties of casts. The spinal fluid contained dark, thick blood.

She died two hours after admission.

The most important pathology (E. C. P.) was that of the brain, kidneys and the heart.

In the brain there was a pontine hemorrhage 4 cm. x 4 cm. x 3 cm. destroying almost the entire brain sub-

stance below the aqueductus from the mamillary body to the medulla oblongata. The floor of the fourth ventricle was lifted up by the hemorrhage and its cavity was obliterated. The hemorrhage extended laterally into the brachia ad cerebrum. One can assume, therefore, that practically all the nuclei of the V, VI, VII, VIII and the frontal parts of the vagus, accessories and hypoglossus were more or less completely destroyed. The hemorrhage area was dry and crumbling. Its outlines were irregular and did not correspond to the distribution of an artery. One branch of one of the a.a. medianae pontis located in the midst of the hemorrhage appeared to be torn and possibly represented the point from which the hemorrhage originated.

The kidneys were rather small weighing about 100g. each. Their capsule was adherent. The cortex was narrow. The heart showed marked concentric hypertrophy. It weighed about 350g.

Microscopic examination of various cerebral vessels of larger caliber (a.a. basilaris, cerebri media and their branches) showed only moderate sclerotic changes evidenced by thickening of the elastica interna. The detailed examination of various parts of brain substance near and within the hemorrhagic area showed that a few isolated arterioles were markedly narrowed. Their walls were hyalinized.

Microscopic examination of the kidneys showed advanced subacute and chronic changes. There were some foci of lymphocytic and plasma cell infiltration, increase in fibrous tissue and calcification of tubular epithelium in the form of globular concretions. The arterioles displayed few if any sclerotic changes.

The exact mechanism of hemorrhage remains obscure and can hardly be interpreted on a morphological basis alone. Recent investigations show very widespread changes in small vessels in the zone about a hemorrhage. This prompted Pollack and Rezek<sup>8</sup> to deny the correctness of the usual conception that the hemorrhage is due to a rupture of a diseased vessel. In their opinion these widespread degenerative vascular changes are in some way or another responsible for the hemorrhage.

However, analogous degenerative vascular changes are found in the regions of the same brains, not affected by hemorrhage.

In cases, like ours, with a rather large "compact" hemorrhage, a definite impression is gained that it is due to a rupture of a large vessel, probably an arteriole. The extent of lesion, rather bulky extravasate, compression of the aqueduct and the fourth ventricle, distortion of anatomic structure favor such an assumption.

The regenerative vascular changes mentioned above do not support the "spastic theory" of

brain hemorrhage offered by Westphal and Baer.<sup>7</sup> The "fermentative" theory of Rosenblath is pure speculation. Clinico-pathological and statistical study shows definite connections between hypertension and apoplectic insults. Even a transient elevation of blood pressure may cause hemorrhage. Brain hemorrhages in whooping cough in infants are not rare and were recently studied by L. Singer.<sup>8</sup> Oesterlen<sup>9</sup> describes an apoplexy from sudden fright. In our case emotional reaction to a moving picture show may have been a factor of no mean importance.

#### SUMMARY

A case of extensive pontine hemorrhage in a girl 25 years of age with cardio renal disease is described. The mechanism of hemorrhage is discussed. Hemorrhagic lesions of the brain are enumerated.

#### BIBLIOGRAPHY

1. Herxheimer and Schulz: *Klinische Wochenschrift*, 10:433, March 17, 1931.
2. Schwarts: "Die Arten der Schlaganfaelle des Gehirns und ihre Entstehung," Berlin, 1930.
3. Böhne, C.: *Beitr. z. path. Anat. u. Allg. Path.* 86: 566. 1931.
4. Berner, O.: *Virchow's Archiv. f. path. Anat.* 227: 386. 1930.
5. Böhne: *Beitr. z. Path. Anat. u. allg. Path.* 86: 566. 1931.
6. Pollack and Rezek: *Virchow's Archiv. f. Path. Anat.* 265:683. 1927.
7. Westphal and Baer: "Entstehung der Schlaganfaelle." 1926.
8. Singer, L.: *Virchow's Archiv. f. Path. Anat.* 275: 645. 1930.
9. Oesterlen: *Aerzt. Monatschr.* 11 p. 324. 1928.

#### RELATION OF ENDOCRINE THERAPY TO GENERAL MEDICINE\*

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Recognizing the part that endocrines play in human physiology and their dysfunction in human ailments, not only broadens one's view of medicine in general, but also enlarges his armamentarium for the treatment of disease. The so-called endocrinologist is merely a doctor who recognizes the wisdom of this and consequently makes some study of endocrine functions and their relation to specific disease entities—the so-called endocrinopathies—and to other abnormal conditions presenting themselves for treatment. He believes that aberration of function in these

structures leads to or is associated with more or less profound changes in the body economy. He believes that many of these can be recognized and efficiently treated. Therefore, we should examine a patient for signs of endocrine disorder just as we routinely examine him for the condition of his heart and kidneys. To do this we should begin by taking a very careful history. This should be more extensive and intensive than is routinely taken.

It should begin with the patient's birth and continue up to the moment he comes under the doctor's observation. It should record whether he was delivered at full term, with or without forceps and whether any injury was noted. It should indicate whether the cord healed promptly, as it does not in hypothyroidism, whether the patient was breast or bottle fed, the occurrence of gastrointestinal upsets, common in hypothyroidism; the age at which the first tooth was acquired and walking and talking began—these are delayed in hypothyroidism. The age at which enuresis stopped. In women it should particularly inquire as to the age of puberty and whether the first menstrual period was followed at regular intervals by others. If not at regular intervals, it should inquire into the nature of the irregularity; whether the intervals are too long or too short and whether all of the intervals are of approximately the same length. If pain occurs in connection with the period, we should inquire as to the location, distribution and time of occurrence; whether before or during the period, or both. If some periods are more painful than others, the history should find out about that and whether the painful ones alternate with those that are less so. It should record whether cold or sore throat occurs at this time and the emotional state; whether there is nervousness or whether the patient becomes blue and depressed, or has nausea and vomiting at this time, as commonly occurs in the presence of ovarian insufficiency.

If pregnancies have occurred, the history should show their course, whether normal or otherwise and how they terminated. If at full term whether the mother was able to nurse the child. Women having pituitary insufficiency frequently cannot. If a woman is past the menopause, the history should inquire as to the age at which it occurred and whether it was accom-

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panied by considerable disturbance, hot flashes, nervousness, sweats, attacks of weakness and a more or less profound emotional upset. This last information will probably have to be gotten from some member of the family or a friend.

*The family history* should include the usual inquiries, plus a statement as to the size and build of the parents, brothers, and sisters. An abnormally tall father and short mother are apt to produce one or more children with pituitary deficiency.

*The past history* should include the usual inquiries regarding infections, etc., and whether the onset of the patient's present complaints was related in a chronological way to an operation or infection. The first influenza epidemic of 1918 seemed to have a selective action on the ovary as was indicated by the number of cases of amenorrhea which followed it. A general infection, such as influenza or tuberculosis, may damage the ovaries, or a local infection in the pelvis may destroy them. The onset of symptoms of ovarian insufficiency may shortly follow this infection. The sequence of events should always be inquired into. We should find out if a nervous breakdown has occurred and then inquire very carefully as to the symptoms the patient may have complained of at that time; nervous breakdown being a term that covers a multitude of sins. It might indicate incipient tuberculosis, Graves' Disease, Addison's Disease or ovarian insufficiency.

*The environment* should be carefully inquired into because of the well known influence of nervous strain, not only on the endocrine system but also and particularly on the functions of the gastro-intestinal tract.

*The usual careful physical examination* should be supplemented by a careful consideration of the patient's stature, height and weight; the proportion of the upper to the lower measurements and the relation of the height to the span. If the patient is obese we should note particularly the distribution of the fat, as to whether it is a general affair, distributed from head to foot as in hypothyroidism, or localized about the pelvic and shoulder girdles as in hypopituitarism. The texture and color of the skin should be noted; whether it is dry and easily chapped as in hypothyroidism or soft, warm and moist as in hyperthyroidism; whether it bruises easily, and

whether pin pricks and small wounds heal rapidly without leaving pigmented areas, or if the opposite condition be true as in hypopituitarism. The nails should be inspected for white spots, ridges and signs of brittleness, such as occur in thyroid deficiency, or for punctuate depressions, such as occur in adrenal deficiency. The teeth should also be inspected, not only for the usual signs of infection, recession of the gums, etc., but also for the quality of the teeth, their spacing, size and regularity of placement. Hypothyroidism in early life is accompanied by irregularity of the teeth. The value of a detailed history can be illustrated by a woman of 53 who complained of headache of 10 years' duration. Its onset was coincident with the beginning of the menopause. At first it occurred only once a month, beginning about one week before the period was due and continuing until the period was established. Later it also occurred about midway between periods. It was still occurring twice a month when she came under observation. Now it is well known that the pituitary hypertrophies after castration and probably at the menopause. This woman exhibited the typical picture of bilobar hypopituitarism. That is, she was five feet one inch with short tapering fingers. Her moderate obesity was of the girdle type. Her skin was soft, moist and easily bruised. It was almost hairless over the body and scant in the axillary and pubic regions. The laboratory reports supported the diagnosis of hypopituitarism. In view of this it seemed not unreasonable to believe that, as her insufficient pituitary underwent some enlargement at the beginning of the menopause, this enlargement might be sufficient to cause headache which at first occurred as the pituitary was elaborating its female sex hormone. Later as it attempted to produce the luteinizing hormone midway between the periods there was probably a second stage of hypertrophy and consequently a second headache developed between the periods. Further examination demonstrated that the woman was the victim of hypopituitarism. Treatment with pituitary products promptly relieved the headaches, and so furnished a therapeutic test as to the accuracy of the diagnosis.

Every man who practices medicine is confronted with endocrine disorders, either per se, or as complications, or a matter of coincidence with more common syndromes. He will render

his patients better service if he investigates their endocrine make-up.

Perhaps it will simplify our consideration of this subject if we take up the various specialties in turn. We realize, of course, that the so-called general practitioner sees all of the conditions mentioned, that he competently handles ninety per cent. of all diseased conditions. Consequently, what is said about the internist, surgeon, etc., applies also to the general practitioner.

*The internist* should think of the adrenals in cases of myocarditis. Christian has said that many patients dying of this condition reveal to the pathologist no change in the architecture of the heart muscle that in any way explains death as being due to cardiac insufficiency. It seems reasonable to believe that if the pathologist, when he is able to get the heart where he can see it and handle it and put sections of it under the scope, finds nothing to indicate that its failure was the cause of death, then there must have been some other cause which the clinician and pathologist overlooked. Barker, in Nelson's Loose-Leaf Medicine, quotes Josue as describing some cases that fulfill this requirement. These patients died of myocarditis. The heart was enlarged and the blood pressure was low. At autopsy the adrenals were found to be very small. To the condition just described the name "asystole surrenale" is given. Neither Josue nor Barker tell us how to recognize these adrenal cases from others which do show cardiac damage. It seems reasonable to administer adrenal therapy to such cases, along with digitalis and other orthodox measures, particularly if the blood pressure is low and no certain etiological factor is found to explain the myocarditis.

Barker also describes in Nelson's Loose-Leaf Medicine what were called cases of adrenal dyspepsia. These symptoms occurred in soldiers who had been subjected to severe shell fire, to prolonged physical strain or had been gassed. The condition was characterized by nausea, vomiting and diarrhea or sometimes by constipation, and by extreme asthenia. Asthenia affected the mental quite as much as the physical sphere, so that it was difficult for these men to read, write or even answer questions. There was nothing to differentiate the condition from other gastrointestinal upsets except the extreme asthenia and low blood pressure. Treatment with adrenal substances by mouth was effective in relieving symp-

toms. Some of these men were returned to the trenches and suffered a relapse with a return of these same symptoms in aggravated form; some of them died from what closely resembled Addison's disease.

Our knowledge of nephritis is still very imperfect as is evidenced by the multiplicity of classifications. For this reason, if no other, the internist confronted with a case of nephritis might well ponder if an endocrine factor is present. It will be remembered that a high grade of thyroid insufficiency produces symptoms and a clinical picture closely resembling that of nephritis. Some years ago thyroid treatment for nephritis was advocated. The men who advanced that idea probably had met a number of cases of thyroid deficiency which they had not differentiated from nephritis. We do not yet know what nephrosis is, and rather heavy doses of thyroid, though far from ideal, seem to be as good a treatment as has been devised for it.

We should remember that hypertension is still something that we know relatively little about so far as its causation and treatment is concerned. In view of our profound ignorance of these things, it would seem a matter of common sense to investigate the endocrine make-up of the patient. A good many cases of thyroid deficiency are accompanied by hypertension. Lawrence and Rowe believe the thyroid has a normalizing influence on the blood pressure. For ten years I have had under observation a man whose blood pressure can be kept within normal limits by appropriate doses of thyroid. It promptly rises to an abnormal figure when thyroid is discontinued. A number of cases are on record where hypertension has been relieved by the use of ovarian products. Dr. Sharkey, at Clinton, Illinois, has had a case under observation for some years to which he has administered whole ovary intravenously with a surprising reduction in blood pressure and a corresponding relief of the patient's symptoms. He has repeated this often enough to be certain it is not a matter of coincidence.

Some years ago Groves and Vines advocated the use of calcium and parathyroid in the treatment of all sorts of ulcers. While their claims were a bit enthusiastic, there is no question but that we would profit by investigating the calcium metabolism of every ulcer case coming under our care, regardless of the location of the



ulcer. Recently calcium and parathyroid therapy have been found quite successful in the treatment of colitis, both of the mucous and ulcerative variety. At the present time I have under observation a patient who has had mucous colitis for about ten years. She has been under the care of the best gastro-enterologists in the country. No relief has been had from the ordinary orthodox treatment. The use of calcium by mouth, combined with parathormone and ovarian residue subcutaneously rapidly brought about a surprising amount of relief. Holmes and Star, and others, have reported the successful use of calcium and parathyroid hormone in the treatment of sprue.

Migraine should be considered from the endocrine standpoint, as well as from every other angle. Moehlig has reported a considerable series of cases relieved by thyroid and pituitary medication. Laurence Mayers has reported an imposing list of cases of headache of long duration which he promptly relieved by pituitary medication.

*Diabetes* is, of course, largely an endocrine disorder. The one thing we know most certainly about it is that there is a shortage of the pancreatic hormone. The loss of resistance to infection by diabetics has long been well known. Strubell of Dresden has shown that the opsonic index for the staphylococcus may be increased by the administration of ordinary pancreatin. Some years ago Cowie and Bevan demonstrated that influenza infections had a particularly damaging effect on the adrenals. Wells has called attention to abscesses occurring in the adrenals in the course of some infections. Many years ago Sajous stated his belief that pneumonia effected much of its damage through the adrenals and suggested that many pneumonia deaths were due to exhaustion of these organs. Gordon has recently called attention to the fact that adrenal hemorrhage in babies produces a syndrome exactly resembling pneumonia but without any lung findings.

*The obstetrician* will think of corpus luteum in the nausea and vomiting of pregnancy and in threatened abortion. Many of these cases are successfully treated when a potent preparation of corpus luteum can be had. Cornell and Hammett working independently have shown that when placenta is fed to mothers a few days before and after delivery the babies lose less

weight and begin to gain earlier and continue it more rapidly than do those whose mothers are not so treated. Cutler has shown that painful breasts associated with the menstrual periods can be relieved by ovarian residue by mouth.

*The Pediatrician.* Fat babies weighing nine pounds or more at birth should make the pediatrician think of hypothyroidism and watch the baby closely for signs of this disorder. Enlarged thymus is something to be thought of early. Status lymphaticus is also to be considered. Curiously, the pathologists talk more of this condition than do we clinicians, and some of them have drawn very accurate pictures of it for us.

The enlarged thymus found in inmates of asylums, poor farms, etc., furnishes interesting material for speculation. Dr. Carroll Eugene Cook, at the suggestion of Calvin Coolidge, then governor of Massachusetts, collected the data on criminals in the state of Massachusetts in something over 200 post-mortems. No case was found in which the thymus was within normal limits of size. Usually it was at least twice and in many cases five times what we think of as normal size. Similar but less striking results were found by the Department of Anatomy at the University of Virginia.

*The Surgeon.* Delayed union in fractures after the usual causes have been excluded should make the surgeon think of some endocrine influence. Parathormone is usually the thing not to use. It mobilizes calcium from the body depots, of which the bones are the largest. The thyroid is probably more often at fault. Crile's recent publication regarding the denervation of the adrenals for recurrent hyperthyroidism, neurocirculatory asthenia, and peptic ulcer is of great interest. It certainly is not an operation to be casually recommended to a patient. Several years ago, Marine and Baumann showed that one of the functions of the adrenal cortex was the inhibition of the heat-producing action of the thyroid. When they were severely damaged in cats and rabbits, this inhibition was removed and a syndrome closely resembling Graves' disease ensued. Baumann also published his results in treating Graves' disease by the administration of an emulsion of adrenal cortex in glycerine. His results in these cases were very hopeful. There was a general amelioration and a great improvement in the patient's clinical condition. Every case of interval appendectomy

being considered should, if there is any doubt at all as to the culpability of the appendix for the patient's complaints, be considered from the standpoint of the possibility of the whole trouble being due to ovarian and pituitary dysfunction.

*The Gynecologist.* Endocrine disturbance will be thought of by him, particularly in relation to menstrual disorders, amenorrhea, dysmenorrhea, menorrhagia, metrorrhagia, and symptoms of the menopause. It seems to be the rule that men who are called upon to treat menstrual disorders of almost any sort first use the ovarian preparations either by mouth or subcutaneously. Most often they seem to use the corpus luteum. Incidentally, this is the preparation least often indicated. Rarely do men use ovarian residue.

Amenorrhea many times is due to primary ovarian insufficiency. Such cases are likely to be greatly benefited by treatment with ovarian preparations. Almost as frequently, amenorrhea is due to primary pituitary disturbance, the ovary being involved secondarily. Such cases, of course, are best treated by a combination of pituitary and ovarian medication.

Dysmenorrhea is usually considered and treated in the same way. Ovarian preparations, either the standardized products like theelin, amniotin or estrogen, or the non-standardized products like ovarian residue, ovarian substance or corpus luteum, occasionally are quite successful. I cannot agree with Mazer that dysmenorrhea is an expression of lack of development of the uterus and that consequently the prime indication is for theelin or some other female sex hormone preparation. If lack of uterine development were responsible, the dysmenorrhea should begin with puberty. This is not true of many cases. They frequently follow childbirth or an operation about the pelvis. Frequently dysmenorrhea is due to pituitary deficiency. Relief in such cases is afforded more promptly by the administration of pituitary preparations. At this time I have under observation a woman suffering from dysmenorrhea who was advised by one of the foremost obstetricians in this country to have the ovarian function destroyed by radium because he was unable to relieve her pain. In a period of six weeks it has been possible to effect a fifty per cent. reduction in her

discomfort by the use of pituitary medication alone.

Menorrhagia and metrorrhagia are rarely due to a deficiency of the female sex hormone. They may be and frequently are due to failure of the corpus luteum to function. Consequently these syndromes are many times amenable to injections of this substance or the luteinizing hormone from the anterior lobe of the pituitary or lipolutin of Parke Davis and Company. These conditions can sometimes be controlled by calcium by mouth and the parathyroid hormone subcutaneously. Curiously, all three of these conditions—amenorrhea, dysmenorrhea and metrorrhagia—can many times be relieved by low dosage x-ray treatment to the pituitary or the ovaries, or both. Whether this light dosage treatment stimulates the pituitary to exercise a regulatory function no one at the present time knows. We do know that this sort of treatment is efficacious and harmless. We use five or ten per cent. of an erythema skin dose applied to the bitemporal fields 5x5 cm. or to two abdominal fields, 8x10 cm.

The symptoms of the menopause can sometimes be relieved by ovarian medication. It is perhaps here that the standardized products are most efficacious. It is here also that they sometimes are the most dismal failures. Some of these symptoms, particularly the sweating, can be relieved by the x-ray therapy just mentioned. It is possible but not yet proven that some of them may be relieved by the administration of pancreatic products either by mouth, as pancreatin, or by injection, as insulin. It seems entirely likely that some symptoms of the menopause are due to over-action of the adrenals.

*The Dermatologist.* When I use the term eczema, perhaps the dermatologists will not understand what I mean, but I am sure every other practitioner will understand. Such conditions make us think of thyroid deficiency and the disturbances of calcium metabolism, and occasionally of ovarian or pituitary deficiency. Urticaria should remind us to look into the calcium metabolism of the body. We know it can be relieved temporarily at least by adrenalin and some cases can be relieved in miraculous fashion by injection of splenic extracts. Unfortunately, we cannot at this time tell which cases will and which



will not yield to splenic therapy. In a general way it may be said that dry, scaly conditions of the skin should cause us to think of thyroid deficiency when we come to consider the possibility of an endocrine factor in the case. Weeping, itching lesions should remind us to investigate the blood calcium and to look for signs of parathyroid or pituitary deficiency.

Acne is very frequently related to ovarian deficiency and many times will yield to ovarian therapy where orthodox measures fail. Sutton says that pustular skin affections, particularly if they are associated with secondary anemia, are greatly helped by liver therapy. The dry skin which easily chaps in cold weather is, of course, characteristic of thyroid deficiency. Brittle nails are also common to that condition.

*The eye, ear, nose and throat men* might well think of an endocrine factor in the common cold. A good many women suffering from ovarian insufficiency have symptoms of a cold and sore throat with every menstrual period. Some years ago Groves and Vines stated that sinusitis could be advantageously treated with calcium and parathyroid. Not all cases can be cured by this method, but the very troublesome cases that do not respond well to the orthodox measures should have the calcium metabolism of the body inquired into.

A worker from South Africa has reported considerable improvement in otosclerosis treated with parathormone.

Incipient cataract is said to have been treated advantageously with thyroid. Only recently attention has been called to the fact that many patients with cataract also have hyperglycemia. The well known disturbance of the eyes associated with diabetes should perhaps have called our attention to that some time ago.

In the investigation of pituitary deficiency we frequently ask the ophthalmologist to determine the forma and color fields as they are frequently contracted in this deficiency. This is true in the absence of a tumor. The retina is said to be a little more yellow than usual and the blind spot larger. These last two observations I have not been able to confirm.

The adrenalin sound test or probe test can best be carried out by the rhinologist. After the lower turbinate is blanched by the application of adrenalin, the passage of a probe gently over

the turbinate will lead to a reddened area which persists for a considerable period of time. This test is said to be positive in head injuries, in migraine, and in disturbances of the circulation on that side of the head on which it is positive. It seems quite a valuable test which has had relatively little application in medicine.

*The Neuropsychiatrist.* Years ago Jelliffe reported a number of cases that had been referred to him as tabes but which were found to be suffering only from hypothyroidism. The retardation of mental processes that occurs in hypothyroidism has long been known. The mental and emotional upsets that occur at the menopause during pregnancy or immediately postpartum call attention to the intimate relation of the ovarian function to a woman's emotional and mental life. Dementia praecox is frequently associated with a degeneration of the gonads. Sleeper and Hoskins report a number of cases treated successfully apparently by the administration of thyroid.

*The urologist* first of all thinks of an endocrine factor in impotence, and frequently that factor will be present as a thyroid or pituitary deficiency. Whether we shall eventually find a testicular deficiency which we can recognize and treat is another story. A testicular hormone has been isolated. We do know something about it. We do know that its administration will prevent or counteract the results of castration in fowls. It is not available commercially.

Some cases of prostatic hypertrophy which occur in individuals having pituitary deficiency are at least made more comfortable and have their symptoms relieved by overcoming the pituitary condition. While I am not suggesting pituitary therapy as a cure for prostatic hypertrophy, I am suggesting that the pituitary function be investigated, and if found deficient that this condition be corrected before surgery is resorted to.

Enough has been said to indicate that every practitioner regardless of his specialty is confronted with endocrine disorders. His refusal or failure to recognize them in no ways aids either him or his patient. These cases should be studied by taking a more extensive history than usual and by supplementing a thorough physical examination by some attention to signs of endocrine dysfunction.

30 North Michigan Avenue.

## Society Proceedings

### OGLE COUNTY

Ogle County Medical Society held its May meeting at the Collier Hotel, May 26, Rochelle, Illinois.

Dr. Weld of Rockford reported on the meeting of the Illinois State Medical Society at Springfield.

Dr. W. E. Kittler, delegate, gave his annual report on the Illinois state meeting.

Dr. Kloster was voted a membership in Ogle County Society.

Judge Walker F. Hull, Probate Judge, Rockford, gave a detailed and instructive talk on "Procedure in the matter of claims for medical services rendered decedents." His information will be valuable to all Medical men filing claims in Probate Court.

Judge B. Harry Reck, Mendota, La Salle County Judge, made a most eloquent plea to Medical men for their aid in Juvenile and Crime prevention work.

Psychiatry will in the usual case be of more benefit than a court sentence.

In County Court a juvenile will receive a Medical examination and the benefit of a psychiatric examination under the new plans.

### Personals

Dr. Martin H. Seifert has been appointed health commissioner of Wilmette, succeeding Dr. Winfred W. Hawkins, resigned.

Dr. Earl B. Ritchie has resigned as assistant professor of dermatology at the Graduate School of Medicine of the Division of Biological Sciences, University of Chicago.

Drs. James P. Simonds and James T. Case, Chicago, conducted a clinical pathologic conference on colon obstructions before the Livingston County Medical Society, May 25, in Pontiac.

The Cross of a Chevalier of the Order of the Crown of Italy was conferred on Dr. Louis D. Moorhead, dean and professor of surgery, Loyola University School of Medicine, June 13. The decoration was conferred by Giuseppe Castruccio, Italian consul general in Chicago.

The St. Clair County Medical Society was addressed, June 2, by Drs. A. A. Werner on "Ovarian Hormones and Theelin;" Alphonse McMahon, St. Louis, "Structural Changes in Endocrine Disorders," and Charles H. Neilson, St. Louis, "Some Observations of Hyperthyroid States."

Dr. Austin A. Hayden became president-elect of the Chicago Medical Society at a meeting, June 14, and Dr. Charles H. Phifer was re-

elected secretary. At the annual dinner, June 15, Dr. Herman L. Kretschmer was installed as president of the society, succeeding Dr. John R. Harger.

Dr. Charles L. Tegtmeier, Freeburg, has been appointed district health officer, succeeding his brother, the late Dr. Edward H. Tegtmeier, Millstadt. Dr. Tegtmeier has practiced in Freeburg for twenty-four years. He served as mayor of the city for three terms and was village health officer for fifteen years. He will have charge of state health activities in the counties of St. Clair, Madison, Monroe, Clinton, Washington, Randolph and Perry.

Dr. Archibald L. Hoyne was elected President of the Chicago Pediatric Society at the annual meeting held on May 17.

Dr. Max Thorek has been appointed consulting surgeon to the Municipal Tuberculosis Sanitarium of Chicago.

Dr. M. L. Folk addressed the Chicago Ophthalmological Society, May 23, 1932, on "Vaccinia of the Eyelids and Conjunctiva."

Dr. R. W. McNealy was elected President of the Chicago Surgical Society at its last meeting, June 3.

Mr. Paul H. Fesler, Superintendent of Wesley Memorial Hospital and President of the American Hospital Association, addressed the Western Hospital Association at their meeting on June 14 in Salt Lake City.

Dr. G. Koehler, for twenty years Assistant Commissioner of Health of the City of Chicago, and for the past year with the Illinois State Department of Public Health, was appointed Director of Health and Hygiene in the Springfield, Illinois, schools. The appointment was made on the recommendation of Dr. C. W. Milligan, health officer of Springfield, and the Sangamon County Medical Society.

### News Notes

—The Medical Research Club of the University of Illinois was addressed, June 2, by William C. Rose, Ph.D., Urbana, Ill., on "A Search for a New Protein Component Essential for Life."

—The Chicago *Tribune* reported June 4, that the medical advisory board of the Public Health



Institute had been dissolved by the board of trustees.

—At the meeting of the Chicago Gynecological Society, June 17, the speakers were Drs. Edward D. Allen on "Irregularity of the Menstrual Function;" Edward L. Cornell and Abraham F. Lash, "A Clinical Study of Abdominal Pregnancy," and William J. Dieckmann and Morris Edward Davis, preliminary report on "Volumetric Determination of Amniotic Fluid with Congo Red."

—Four typhoid carriers were detected recently, when the development of sixteen cases of typhoid in Springfield led to a search for carriers among milk handlers and certain food handlers of the city. Two of the carriers were employed by the same milk dealer, one being a butter wrapper and the other an ice cream dispenser. Another made ice cream, which he sold from his own stand, while the fourth carrier delivered milk from a wagon. The state health department believes that the discovery of these carriers solves the outbreak, as no new cases have developed.

—Anticipating an increase in the prevalence of poliomyelitis during the next few months, the state department of public health has collected and is prepared to distribute to physicians on request human convalescent poliomyelitis serum. This serum is available free and can be had at any hour of the day or night. Limited supplies make it impracticable to provide physicians with the serum for anticipated needs, however, so that requests should be confined to immediate requirements. Reported cases up to June 4 this year, the department states, exceed those for the corresponding period in 1931.

—Dr. Anton J. Carlson, chairman, department of physiology, Graduate School of Medicine of the Division of Biological Sciences of the University of Chicago, gave the initial contribution toward a fund of \$30,000 to provide a fellowship in honor of Dr. Arno Benedict Luckhardt, professor of physiology in the school. In making the contribution, Dr. Carlson wrote to the president of the university as follows: "I have had under consideration for some time the establishment of a fellowship in recognition of Dr. Luckhardt's outstanding services in research and teaching in the medical sciences, the appointment to the fellowship to be vested in the depart-

ment of physiology of the university . . . it is planned that the fellowship is not to be awarded until the fellowship fund reaches \$30,000 or more so that the annual amount of the fellowship will be at least \$1,500."

—Two bronze tablets commemorating the work of the late Dr. Thomas L. Gilmer were dedicated, June 7, in Gilmer Hall of the Montgomery Ward Memorial Building, Northwestern University. One tablet records the medical service of the Gilmer family through five generations from 1731 to 1931, the Chicago *Tribune* reports, and the other records the life of Dr. Gilmer. The exercises were conducted by the department of oral surgery, of which Dr. Herbert A. Potts is head. Dr. Gilmer was chairman of the group that founded the Northwestern University Dental School in 1891. He was professor of oral surgery in the dental school for forty years and was dean from 1916 to 1918. He was the author of a book on oral surgery and many papers on dental education, oral surgery and bacteriology, including a classic treatise on jaw fractures. Dr. Gilmer died, Dec. 28, 1931.

—The Joseph A. Capps prize of \$500 will henceforth be awarded annually instead of on alternate years, as originally stipulated by the anonymous donor who established the prize in 1931. This decision was made at the request of the donor because of the general excellence of the papers presented by the twelve contestants for the first award of the prize this year. The original plan was to give the prize one year and to sponsor a lecture the second year. Manuscripts for the second Joseph A. Capps prize must be submitted to the secretary of the Institute of Medicine of Chicago, 122 South Michigan Avenue, not later than December 31. Competition is open to graduates of Chicago medical schools who have received the degree of doctor of medicine during the year 1930 or thereafter. The prize is awarded for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem.

The first Joseph A. Capps prize paper was read by Dr. Warren B. Matthews, May 27, before the Institute of Medicine of Chicago on "Studies on the Etiology of Gastric and Duodenal Ulcer."

The prize was presented to Dr. Matthews at this meeting. Other speakers on the program were Drs. Otto F. Kampmeier on "Problem of Coordination of Medical Libraries in Chicago," and Frank E. Simpson, "Problems in Radium Treatment of Carcinoma and Other Radiosensitive Tumors."

—The Chicago Academy of Criminology has elected the following officers for the coming year: President, Prof. Edwin H. Sutherland, Department of Sociology, University of Chicago; vice presidents, Dr. Ludvig Hektoen, Director, John McCormick Institute for Infectious Diseases; Dr. Paul L. Schroeder, Director, Institute for Juvenile Research, and Prof. Arthur J. Todd, Department of Sociology, Northwestern University; secretary-treasurer, Dr. Meyer Solomon, Department of Neurology, Northwestern University Medical School.

—The Fall examination of the American Board for Ophthalmic examinations will be held Monday, Sept. 19, 1932, at Montreal at the time of the meeting of the American Academy of Ophthalmology and Oto-Laryngology. Necessary applications for this examination can be procured from the Secretary, Dr. William H. Wilder, 122 South Michigan Avenue, and should be sent to him at least sixty days before the date of the examination.

—The Central Wisconsin Society of Ophthalmology and Oto-Laryngology was addressed by Dr. Louis Bothman and Dr. Francis L. Lederer, of Chicago, on June 4, 1932, at Green Bay, Wisconsin. Dr. Bothman's subject was: "Cataract Surgery in India" and on "Detachment of the Retina, Diagnosis and Surgical Treatment." Dr. Lederer spoke on "Mastoiditis, Its Pathology and Indications for Operations" and "The Present Status of Malignancies about the Head, Neck and Their Management."

—On May 18 the Department of Registration and Education suspended for three months the medical license of Dr. Ethel Maria Fikany, and on June 2 suspended the license of Dr. Joseph Thomas Duffy for one year, on account of their association with Lester Tilton, the cancer "specialist," who was convicted, June 16, for conspiracy to violate the medical practice act. Subsequently the Chicago Medical Society expelled Drs. Fikany and Duffy. Tilton and Harry De

Joannis were sentenced to the penitentiary for one to five years and fined \$2,000; Duffy, to one day to one year in the county jail. Cash bonds were made for all and argument for a new trial was set for September 12.

—The Chicago Laryngological and Otological Society elected the following officers: President, Charles B. Younger; vice-president, Thomas W. Lewis; secretary-treasurer, Austin A. Hayden.

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## Deaths

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EUGENE B. APPELGET, Chicago; St. Joseph (Mo.) Hospital Medical College, 1880; aged 85; died, May 24, of injuries received when he was struck by an automobile.

ARTHUR BREMKEN, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 57; died, May 30, of an overdose of chloroform.

JOHN MILLS LANG, Chicago; Rush Medical College, Chicago, 1895; member of the Illinois State Medical Society; aged 66; died May 19, of chronic valvular heart disease and chronic interstitial nephritis.

LEO CHARLES McDERMOTT, Chicago; Georgetown University School of Medicine, Washington, D. C., 1913; on the staffs of the John B. Murphy Hospital and St. Joseph's Hospital; aged 43; died, May 30, in Madison, Wis., of cerebral hemorrhage.

WHEDON WORLEY MERCER, Chillicothe, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; a Fellow, A. M. A.; aged 47; died, May 20, in the Proctor Hospital, Peoria.

WILFRED A. NABORS, Winnetka, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1892; aged 66; died, May 12.

CHARLES LYMAN NICHOLS, Chicago; Eclectic Medical Institute, Cincinnati, 1895; Rush Medical College, Chicago, 1898; member of the Illinois State Medical Society; aged 59; died, May 22, of angina pectoris.

ELEY EBERT PERISHO, Streator, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; councillor of the second district and member of the Illinois State Medical Society; president and formerly secretary of the La Salle County Medical Society; aged 57; on the staff of St. Mary's Hospital, where he died, May 28, of septicemia.

CORNELIUS J. PHILLIPS, Chicago; Rush Medical College, Chicago; 1890; a Fellow, A. M. A.; aged 73; on the staffs of the German Deaconess Hospital and St. Bernard's Hospital, where he died, June 6, of acute myocarditis and arteriosclerosis.

THOMAS ROBERTSON, Steeleville, Ill.; St. Louis Medical College, 1887; a Fellow, A. M. A.; aged 70; died, April 22, of influenza.



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## **Book Reviews**

THE PRACTICAL MEDICINE SERIES COMPRISING EIGHT VOLUMES ON THE YEAR'S PROGRESS IN MEDICINE AND SURGERY. NEUROLOGY, edited by Peter Bassoe, M. D. PSYCHIATRY, edited by Franklin G. Ebaugh, M. D. Price \$2.25. THE EYE, by E. V. L. Brown, M. D., and Louis Bothman, M. D. THE EAR, NOSE AND THROAT, by George E. Shambaugh, M. D., and Elmer W. Hagens, M. D. Price \$2.50. GENERAL SURGERY, edited by Evarts A. Graham, M. D. Price \$3.00. OBSTETRICS, edited by Joseph B. DeLee, M. D. GYNECOLOGY, edited by J. P. Greenhill, M. D. Price \$2.50. DERMATOLOGY AND SYPHILIS, edited by Fred Wise, M. D., and Marion B. Sulzberger, M. D. UROLOGY, edited by John H. Cunningham, M. D. Price \$2.25. Series 1931, Chicago. The Year Book Publishers.

SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 12, No. 3. (Lahey Clinic Number—June, 1932.) 299 pages with 123 illustrations. Per clinic year (February, 1932, to December, 1932.) Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1932.

The contributors to this number are Doctors Lahey, Clute, Cattell, Overholt, Veal, Wilson, Ramsey, Sise, Woodbridge, Hurxthal, Menard, Jorden, Jiefer, Wilkinson, Hill, Haggart, Hicks, Hoover.

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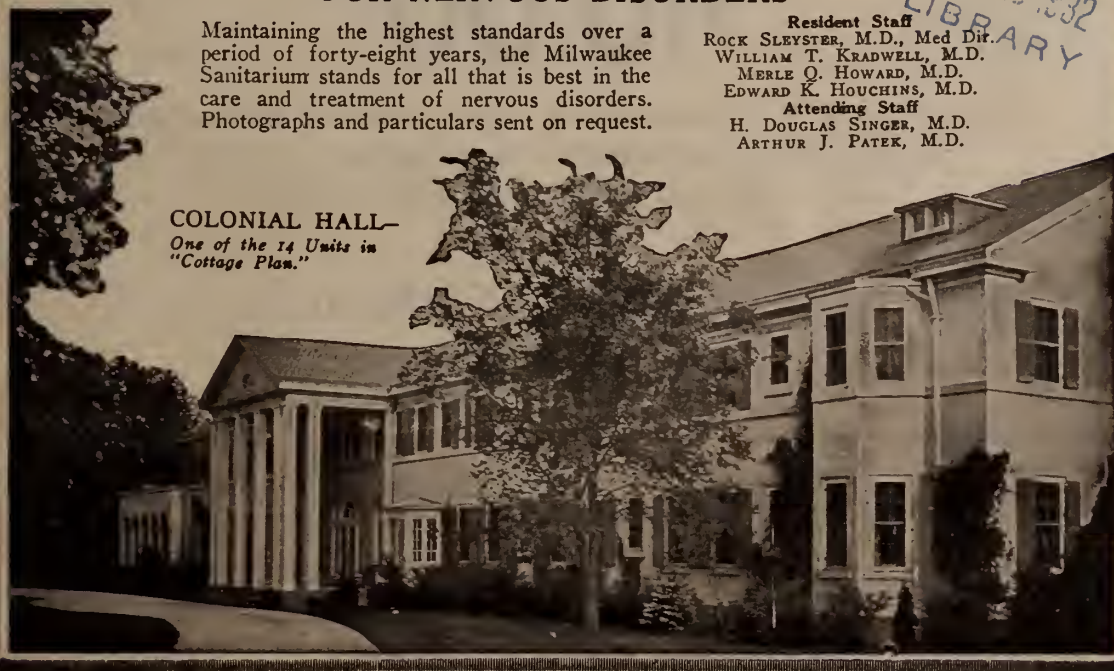
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## Editorials

### AUTOCRACY OF THE SICK ROOM HAS BECOME VESTED IN THE DESPOTIC REALM OF THE NURSE.

The nursing problem is becoming increasingly an example of the frequent paradox that where illness is concerned the "cure is worse than the disease."

As an example of efficiency "hoist by its own petard" the trained nurse situation is one of the most appalling. The medical profession views this Frankenstein of its own manufacture with positive unbelief.

Autocracy of the sick room has become vested in the despotic realm of the nurse who has become a positive czar and who is as luxurious an expense as any Romanoff ever dared to be. Sick-ness is an expense that no family budget can afford to carry under the best of circumstances but under the present conditions insisted upon by a trained nurse before she will accept a case, the employment of such assistance in illness become enough to actually bankrupt a family.

The registered nurse situation today illustrates perfectly the process of refusing to render service in accordance with hire received. The shift system being forced upon the public makes the patient of less importance than the number of hours a day that a nurse stays under the patient's roof. If the patient is dying of typhoid for example a nurse puts in no more time than if the case is a neurasthenic and vice versa. Nurses are demanding the same hire and the same consideration out on a case where the actual nursing duties—many of these not at all menial—require two hours per day. Take for example a case of fatty heart in some degenerative disease where the patient's cumulative chronic condition demands the presence of a trained caretaker, even though the duties are simple, what the present movement tends to insure would be that such a patient should have a shift of three nurses per day each at the rate of fifty dollars a week and board. This is a

case of *reductio ad absurdum* of liberality in the care of the sick. Any doctor who put in a fee of \$150 per week and board for the care of such a case would be accounted a brigand. Yet this discounting of wisdom, skill and directive science upon the part of the physician is made a weapon of argument by the already over-trained and over authoritative nurse in her fight for the greatest pay and the least service. The ranks of the nursing profession have held and do hold thousands and thousands of heroic and unselfish women, who undoubtedly have been at the mercy of overbearing patients but the present crusade is basically wrong.

---

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"And the greatest of these is charity!"

But there's no philanthropy in sending dancing shoes to a cripple or blooms to a blind man.

Quite in line is the misdirected benefaction of wealthy, kind-hearted persons, who with all the generosity of those highly impressionable nervous systems frequently prevalent among the wealthy laity let their nerves and their hearts get the better of their sense of justice, economics, and essential need.

When such a mishap occurs what do we find in their midst?

Only too often there occurs a "medical institute" or a "free health center" for all sorts of patients, whether these be needy and unable to pay or rich and parsimonious.

Noble in purpose as may be these endeavors on the part of the ill-advised laity, Heaven knows their results are often over productive of exactly the opposite of what was intended. Instead of helping the destitute poor to rise to better stations such ill-advised charities tend to submerge the self-respecting poor into the path and swamps that lead to pauperization.

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#### IMPRISONMENT MANY TIMES MORE COSTLY THAN PROBATION

Maude G. Palmer, Illinois State Probation officer in "Welfare Bulletin" July, 1932, under the caption Does Probation Pay in Dollars and Cents? says:

"Some very significant facts have been brought out recently in reports published in Massachusetts and New York concerning the economic aspects of probation service. While the trained and practical worker in the field of probation, as well as the student of sociology, is fully aware of the value of probation service from the humanitarian point of view, and feels that its costs are more than compensated by its results, the ordinary citizen and taxpayer need more convincing arguments.

"In these days of excessive taxation and high cost of government, people have a right to demand and to secure economies in public service. It is no economy to go on building bigger prisons and reformatories, to add more cells to those we already have, and to increase our parole divisions. True economy would be shown in extending probation service into every section of the state, through both county and circuit courts, and for the state to support and encourage its use in every possible way.

"Probation costs, on the average, about one-tenth as much as imprisonment.

"Those who are skeptical about the value of probation are probably those who have lived in communities where it has been given carelessly and unwisely; where there has not been proper investigation of the offender before granting probation and proper supervision of him afterwards.

"England, Holland, Massachusetts and New York are outstanding examples of what probation does when properly financed and administered. What is helping to close the prisons in England? Probation. What has closed five prisons in Massachusetts in the last few years? Probation. The crime rate has continued to decrease in these places.

"A report from the adult probation depart-



ment of Monroe county, N. Y., states that, 'in the first place, probation is essentially a *state function and obligation* as much as prisons are. It is not a matter for local administrations to determine exclusively. Neither should the entire cost be borne locally. Crime is well organized, and not a local matter. The departments for the suppression of crime should be at least as well organized and universal in their administration, and as well financed, as crime has proved itself to be.'

"The report from Massachusetts states that, 'the demand is emphatic for the state government's direction or supervision of the service, an end to be reached without impairment of the localized initiative and contribution.'

"More persons, 34,304 to be exact, were placed on probation in Massachusetts during the year ending September, 1930, than in any previous year. The total cost of this service for the year was \$614,480.18 or \$17.91 per capita, per year. It included payment by the counties for salaries and expenses of probation officers, and by the state for those of the board's office. Collections from probationers amounted to over \$2,000,000, leaving a net profit of \$1,475,300.50.

"To this sum must be added the amount saved the taxpayers for the cost of institutional care of such portion of these offenders as, under the old order would be imprisoned, and the care of their families, most of whom would have been a public charge.

"The New York report shows that imprisonment in that state costs nineteen times as much as probation and that the cost of the construction, per inmate, of the new Attica prison will be \$5,000. The total cost of the adult probation department of Monroe county for each case under supervision in 1930 was \$56.10. Therefore the sum of \$5,000 would have taken care of nearly 90 people on probation."

#### **\$125,000,000 SPENT ANNUALLY ON HEALING CULTS IN UNITED STATES.**

The Committee on the Cost of Medical Care says: Approximately \$125,000,000 annually, equivalent to 12 per cent. of the amount spent on the 142,000 doctors of medicine, is expended in the United States on 36,150 other practitioners who hold themselves out to treat the sick—osteopaths, chiropractors, naturopaths and allied

healers, and Christian Science and New Thought practitioners—according to Louis S. Reed, Ph.D., in a report presented to the Committee on the Costs of Medical Care, yesterday (Sunday, May 1).

Present legislation designed to protect the public from unqualified practitioners is not accomplishing its purpose, according to the report, for, although it maintains high standards for doctors of medicine, it sanctions the existence on a lower plane of qualifications of thousands of poorly trained practitioners. The use of any therapeutic measures by untrained or poorly trained individuals, unable to diagnose disease and unaware of their limitations, is unsound, dangerous and wasteful, no matter how sound those measures may be, Mr. Reed said.

The report stated that, while religious healing is able to accomplish beneficial results in some conditions, it may be harmful when practiced by those unable to diagnose disease, especially when it is held that disease is an illusion.

Mr. Reed's report, "The Healing Cults," published by the University of Chicago Press, is the sixteenth study completed by the Committee on the Costs of Medical Care which, on November 29, will issue its final report with recommendations based on its exhaustive five-year study of the problem of "the delivery of adequate, scientific medical service to all the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life."

As a result of his exhaustive study, Mr. Reed estimated that the people of the United States annually spend \$42,000,000 for the services of the nation's 7,650 osteopaths; \$33,000,000 on 16,000 chiropractors; \$10,000,000 on 2,500 naturopaths and allied groups; and another \$10,000,000 on the 10,000 Christian Science and New Thought healers.

A study of 7,800 representative families revealed that only 52 families considered healers in these cults as their family practitioners. Only 1.3 per cent. of the families having medical care during the year used them exclusively, although 10 per cent. resorted to healing cult practitioners at one time or another.

*Cultist Schools Found Weak.* The report traces the development and history of the various cults and contains descriptions of the schools, ideas and legal status of each group. It points out the similarity in the origin of many of the

cults, in that originally their treatments were "cure-alls" based on all inclusive theories of the cause of disease. Modification of such theories and the elevation of professional and educational standards gradually leads the cult to improve in training and diminish in number and eventually to be assimilated into the general body of regular medical practitioners, according to the report.

Mr. Reed condemned the quality of teaching in the chiropractic and naturopathic schools. He found that entrance requirements are lax, equipment is poor, and none makes adequate hospital clinical facilities available to its students, while faculties are largely composed of persons ignorant of the established facts of medicine. At the completion of the regular course in one school, the report reveals, the student receives four diplomas and becomes a Doctor of Chiropractic, a Doctor of Naturopathy, a Doctor of Physiotherapy and a Master of Physical Culture.

*Why Do the Cults Exist?* In explaining the prevalence of healing cults Mr. Reed stated that, "The idea of healing the sick, and being a 'doctor' with all that the title entails, is very attractive to many people, but this field of economic endeavor is closed to many by reason of the very high qualifications which the law requires of medical practitioners. Healing cults, therefore, provide a short cut for those who lack time, money or mental capacity to attain the qualifications demanded of the medical profession."

Mr. Reed gave some of the reasons why the public patronized healing cults practitioners:

1. Because of inattention by some medical practitioners to minor illnesses and to ailments of the mind.

2. Because doctors cannot cure all diseases and those who have failed to obtain help from regular doctors feel that little is lost by trying the "irregulars."

3. Because many people are still basically superstitious about disease and health. They know little about the body and its functioning. They regard medicine neither as science nor art but as magic. To these the healing cult practitioner, with his simple explanation of disease, his confidence and his promise of cure, appears as a greater magician than the physician whose very knowledge makes him hesitate to promise a cure.

4. Because many patients are unaware of the

limitations of the healing cult practitioners whom they consult, since they do not understand the meaning of D.O., D.C., N.D., and other titles of the various practitioners indiscriminately called "doctor." The reputation of healing cult practitioners is sustained by the fact that in acute diseases 80 to 90 per cent. of all patients get well under any treatment or none. And when a patient gets well his recovery is attributed to the virtues of the treatment.

*Makes Recommendations Regarding the Cults.* Mr. Reed pointed out the following ways in which the situation with regard to the healing cults can be improved:

The lay community's stock of knowledge regarding the human body and its functioning must be enlarged and more widely disseminated. As a result, for each succeeding generation, the limits within which credulity exists and unscientific practitioners can operate will be narrowed.

The passage by more states of basic science laws may be expected to cut down the inflow of poorly trained practitioners. These laws, already in existence in some states, require that all applicants for licenses to practice any branch of the healing art must first pass an examination in the basic sciences. The state should see that healing practitioners, whatsoever their beliefs, are properly trained and that they possess an adequate knowledge of the human body and its functioning and the diseases which afflict it.

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#### VOLUNTARY INSURANCE MAY POSSIBLY CHANGE TO COMPULSORY INSURANCE—THE POSSIBLE ADVENT OF STATE MEDICINE IS BY NO MEANS A NEW THOUGHT.

Dr. Henry O. Reik, the editor of the *New Jersey Medical Journal*, has published (in several editions of his journal) a series of articles entitled "Medical Travel Talk." The articles are based on a personal survey of medical economic conditions abroad. In the May, 1931, issue of his Journal he offers a survey of home economic conditions. We quote:

"And now, at last, we return from this theoretic voyage to foreign countries and are confronted by conditions at home which seem to demand some consideration with relation to the



necessity for opposing, or accepting and guiding, state health insurance—otherwise known as State Medicine. As has been pointed out, nearly every other nation on earth has either voluntary or compulsory health insurance for those citizens who earn less than \$1,200 a year; and it seems highly probable that the few nations yet depending upon *voluntary* insurance will change to the *compulsory* form within the next few years. The possible advent of state medicine into some one of our states is by no means a new thought; its coming has been repeatedly predicted, promised or threatened. It does, however, seem to be at this moment more imminent than ever before; an opinion based upon the fact previously referred to, i. e., that throughout our country those who are most closely in touch with current events believe that state medicine is due to arrive shortly unless the profession can forestall it by supplying something in lieu thereof—some improvement on present methods that will satisfy the demand for better and cheaper service to the mass of citizenry.

“In support of that opinion let us remind you that for the third successive year the Legislature of Massachusetts has been presented with an Act to create a department of public medicine and health for the purpose of furnishing a free and complete medical service to the people of the commonwealth of Massachusetts, patterned upon the bureau of medicine and surgery of the United States Navy.

“That Act will probably not become a law this year but it is a noteworthy fact that each year it has gained in the number of adherents despite determined opposition on the part of the medical profession; and its author tells us he is encouraged to believe it will ultimately be adopted. Further, we may direct your attention to an Act now pending in the New York Legislature: an Act which covers the entire field of health insurance, unemployment insurance and old age pensions. Again, we feel certain this proposition will be defeated this year; but, what about next year or the year following? These are but single instances but they may be considered as very definite indications of the direction of the wind; and they are of special import because they have appeared in two of the most conservative and most important states in the Union, and because neither Act emanated from

a “radical” source; one was drawn by a thoroughly reputable physician, and the other was sponsored by a legislator in good standing—whether or not aided by a physician we do not know.

“On our desk there are 28 original articles that appeared in state medical society Journals between May and October, 1930, articles not searched for but which were observed in the routine course of inspecting the tables of contents as exchange copies passed through our hands, all dealing with this question of prospective state medicine. Among the authors of those articles we note three ex-presidents of the American Medical Association; seven presidents of state societies; two presidents of county societies; and the others are all men of prominence in the profession, no “reds,” no paid writers, no one “with an axe to grind”—but each and everyone speaking in the interest of his medical confrères. We may add, too, that these writers represent all sections of the nation from Maine to California—including, as it happens, both those states.

“We will not bore you now with lengthy abstracts from those articles, but to show that there is no material difference of opinion between physicians of the east and the west, the north and the south who are awake to the situation, and that there is among them a universal demand for preparedness, let us refer briefly to three or four articles arising from widely separated points.

“Dr. S. H. Boyer, President of the Minnesota Medical Society, said: ‘What the attitude of the medical profession shall be in relation to the changes taking place affords food for serious thought. That paternalistic encroachments have taken place is only too apparent. \* \* \* The movement appears to be well nigh world-wide in its scope and its tentacles are reaching hungrily into our own country. It has gathered such impetus now that only a solidly organized and militant profession will be able to ward it off or so modify it as to eliminate its most pernicious features.’

“At the Annual Meeting of the California Medical Association, April 28, 1930, the Chairman of the Committee on Medical Economics, reporting to the House of Delegates, deprecated the lassitude of the major portion of the organization and scolded them for scant courtesy

shown another member who had spent two years in study and preparation of a report upon economics conditions. In consequence, in July issue of the State Society Journal (*California and Western Medicine*) you will find three excellent papers by Drs. Rexwald Brown, of Santa Barbara, John H. Graves, of San Francisco, and John C. Ruddock, of Los Angeles, reviewing the whole subject.

"W. G. Richards, of Billings, Montana, says: 'The danger of our present attitude is that while we stand off and quibble the public may take the matter into its own hands and impose upon us some scheme of its own devising.'

"C. A. Harper, President of the Wisconsin Society, says: 'These facts strongly emphasize a popular demand for certain changes that will comply, more or less, with the wishes of the general public. Is it wise for the medical profession to remain indifferent to the problem while these agencies are developing certain lines of activity, or would it not be far better for the medical profession to appreciate the evolution that is now taking place, and become a prominent factor in guiding these various lines of procedure?'

"From the *New York State Journal of Medicine* (Dec. 1, 1930, page 1424) we quote part of an editorial written by Dr. William H. Ross, President of the New York State Medical Society, referring to the program of the Annual Conference of State Society Secretaries: 'It indicates that the day of isolation in medicine is over and that medicine must soon undertake a self-appraisal of its own organization to see if its own public medical relationships are such as to enable it to make proposals for the solution of unsolved and unmet public medical service problems, chiefly just two—the availability of medical knowledge for limiting illness, and provision for adequate medical care at a cost that can be met without involving the individual in debt from which he can hardly ever recover. It is the obligation of medicine to propose methods for these things, and, also, to work out a solution of how the doctor may be paid for his services to the indigent or near indigent, either in private practice or hospital. \* \* \* There may come another revolution in medical practice, as it has come in the past, as the result of great social needs and social changes; and who knows that it is beginning? We may be

nearer than we know to such things as unlimited old age pensions, provision for adequate medical care by the state, and the inclusion of sickness benefit in Workmen's Compensation and Health Insurance as in other countries. It should make us think?'

"THESE THINGS 'SHOULD MAKE US THINK.'

"That is the note upon which we would close this series of letters."

### COMPARATIVE COST OF MEDICINES UNDER PROPRIETARY AND CHEMICAL NAMES

The Medical Society of New Jersey, March, 1932, calls attention to the comparative cost of medicines under proprietary and chemical names. We quote:

"PAYING—Extravagantly—for a name" is the title of a timely editorial in *The Journal of the Medical Society of New Jersey* for March. In it attention is called to the thoughtlessness or ignorance of physicians in prescribing proprietary preparations about which they know little or nothing, or in prescribing proprietary preparations under a trade-marked name, at an exorbitant price, when the same preparations under a chemical name are listed in New and Non-official Remedies and can be obtained for very much less. As an example, a comparison is made in the relative prices of twelve substances, in quantities of one ounce each, under the proprietary and chemical names, respectively, and the market prices of each. The list is as follows:

	Price 1 oz.
<b>Proprietary—</b>	
Phenacetin .....	\$0.63
Aspirin Bayer .....	.85
Veronal .....	3.00
Atophan .....	2.75
Duotal .....	1.07
Urotropin .....	.60
Tolysin .....	2.25
Luminal (in 1/2 oz. carton).....	6.90
Trional .....	1.90
Sulphonal .....	1.70
Diuretin .....	1.85
Aristol .....	1.80
	<b>\$25.30</b>
<b>Chemical—</b>	
Acetphenetidin .....	\$0.20
Acetylsalicylic acid .....	.15
Barbital .....	.70
Cinchophen .....	.35
Guaiacol carbonate .....	.27
Methenamine .....	.13
Neocinchophen .....	.97



Phenobarbital .....	1.75
Sulphonethylemethane .....	.50
Sulphonmethane .....	.40
Theobromine sodium salicylate.....	.30
Thymol iodid .....	.68
	<hr/> \$6.40

Under its patented name, each drug will cost approximately four times as much as when purchased under its proper laboratory name. The pharmacist is not to blame, because he is, professionally, in honor bound to supply the *exact thing* prescribed—and dare not substitute. It is a point which deserves some thought with regard to these and a few other preparations which are extensively advertised.

### ATTEMPTED LEGISLATION TOWARD INSURING PAYMENT OF HOS- PITAL BILLS

According to the A. M. A. Association Bulletin, bills were considered in Delaware,<sup>380</sup> Illinois,<sup>381</sup> Indiana,<sup>382</sup> Iowa,<sup>383</sup> Maine,<sup>384</sup> Massachusetts,<sup>385</sup> Montana,<sup>386</sup> New York,<sup>387</sup> Oregon,<sup>388</sup> South Carolina,<sup>389</sup> Tennessee,<sup>390</sup> Texas<sup>391</sup> and Utah<sup>392</sup> to give hospitals treating persons injured in accidents liens on any judgments, settlements and compromises obtained by such injured persons by reason of their injuries. Such bills were enacted in Delaware,<sup>393</sup> Montana<sup>394</sup> and Oregon.<sup>395</sup> The hospital lien law in New Jersey was amended by two enacted bills. One bill<sup>396</sup> gives such liens to all hospitals, while the prior law gave it to charitable hospitals only. The other enacted bill<sup>397</sup> establishes a procedure to cancel hospital lien notices on file with county clerks,

when the hospital bills have been satisfied. Bills were considered in Georgia<sup>398</sup> and North Carolina<sup>399</sup> to make it a misdemeanor for any person to obtain credit fraudulently from any hospital. Only the North Carolina bill became a law. The legislature of Oklahoma<sup>400</sup> killed a bill proposing (1) that hospitals have liens on patients' property brought into the hospitals, for charges due for hospital fees, nursing, medical and professional services, and (2) that it should be a misdemeanor for any person to obtain hospital service with intent to defraud the hospital of payment.

*Hospital Nurses.* A defeated Indiana bill<sup>401</sup> proposed to prohibit the employment of nurses in hospitals longer than eight hours a day, except in emergencies.

*Exemption from Taxation.* Attempts in Maryland, Pennsylvania and Oklahoma to exempt, to a limited extent, private hospitals from taxation were unsuccessful. The Oklahoma bill<sup>402</sup> proposed to exempt from taxation hospitals 10 per cent. or more of whose cases were charity cases. The Pennsylvania bill<sup>403</sup> proposed to accord such exemption to hospitals conducted by corporations not for profit or by other purely charitable associations from which no profit is derived.

### QUALITY OF MEDICAL SERVICES DE- TERIORATE UNDER COMPULSORY HEALTH INSURANCE\*

(Continued)

Some fifteen years ago when the prices of eggs and chicken feed were at their highest, I wrote my farmer and asked him why he was not sending us any eggs. I received the following laconic answer: "The pullets look good but lay no eggs." Superficially examined, Compulsory Health Insurance "looks good" but unlike my pullets it has laid many eggs, most of which are added.

When we substitute governmental control in medicine and dentistry for independent individ-

399. Public Laws of N. C., 1931, Chapter 214, introduced as S. 450.

400. Okla. S. 232.

401. Ind. S. 324.

402. Okla. S. 250.

403. Pa. S. 773.

\*Seventh installment of Dr. Edward H. Ochsner's articles on Medical Economics.

376. Ill. H. 852.

377. Colo. H. 78.

378. Conn. S. 127.

379. Conn. S. 333.

380. Del. S. 116.

381. Ill. S. 610.

382. Ind. H. 11 and H. 219.

383. Ia. H. 128.

384. Me. H. 970.

385. Mass. H. 494.

386. Mont. H. 102.

387. N. Y. S. 1596 and A. 2004.

388. Ore. H. 202 and H. 400.

389. S. C. H. 549.

390. Tenn. H. 514.

391. Tex. S. 488, S. 182 and H. 315.

392. Utah. S. 48.

393. Laws of Del., 1931, Chapter —, introduced as S. 116.

394. Laws of Mont., 1931, Chapter 57, introduced as H. 102.

395. Laws of Ore., 1931, Chapter 111, introduced as H. 400.

396. Laws of N. J., 1931, Chapter 231, introduced as S. 161.

397. Laws of N. J., 1931, Chapter 153, introduced as A. 63.

398. Ga. H. 389.

ual action, we stifle self-expression, individuality, initiative, courage, confidence, enthusiasm and industry. We, as a nation, are on the whole already over-standardized. The very ones who wail the loudest about the evils of mechanization are often the very ones who clamor the most for more government control. Excessive bureaucratic and lay control have much the same spiritual effect upon the professional man as over-mechanization has upon the intelligent craftsman. They both have a tendency to crush out fortitude, ingenuity and pride of achievement in those engaged in these vocations. With some, standardization has become almost a fetish in spite of the fact that when pushed too far it always results in mediocrity. The efficient successful practice of medicine always has been and always will be a personal unstandardized affair.

That the quality of medical services has deteriorated in those countries which have Compulsory Health Insurance is due to many causes among which may be mentioned the excessive number of calls upon the time and energy of the physician. Those who receive free medical services are constantly running to the physician for every trifling ailment or compelling the physician to make many unnecessary calls at the homes. Every Krankenkasse physician who has been interviewed has stressed this fact. Baeumer states in his book that between sixty-five and seventy per cent of all calls are unnecessary, consume the time and energy of the physician and the resources of the Krankenkasse, and prevent adequate medical services and hospital care to the really sick. Liek in his book says the number of trivial conditions such as "microscopic skin abrasions, etc." disgusted him so much that he retired from the service. This abuse has grown to such proportions in Germany that the government department has been compelled to issue new regulations to the effect that the insured have to pay a certain fee out of their own pockets for each prescription. This again has given rise to new abuses. A common sequence of new regulations to correct one abuse is to create an opportunity for newer ones. In England unnecessary night calls became so common that many panel physicians disconnected their phones between ten o'clock P. M. and seven o'clock A. M. A fine state of affairs if a patient has a strangulated hernia or an attack of gall stones, of acute appendicitis at midnight! We have all repeatedly

seen and heard the statement that the workers of this country do not have medical services when they most need them—namely, at the beginning of an illness. The claim is made that were prompt services available at this time much serious illness could be avoided. Conclusive proof that private practice is more prompt than Compulsory Health Insurance practice is evidenced by the practice in England of avoiding night calls, and by the fact that the percentage of pus appendix cases, which necessitate draining, is much greater in Germany than in the United States. We all know how the mortality rate is increased by letting acute appendix cases progress to suppuration before they are operated on and how much longer the period of hospitalization is in suppurative cases. If acute illnesses had more prompt and more efficient treatment in Germany, for instance, than in the United States, suppurative appendix cases should be much less frequent, the mortality rate should be lower and the morbidity shortened. As a matter of fact, the reverse is the case which proves rather conclusively that medical services in the United States are more efficient than those in Germany. Such abuses result in endless rules and regulations. Rules that accomplish little except to cramp the individuality and personality of the conscientious physician, wear him out with paper work and leave little time and energy for professional study and advancement. One official described his plight in the following words:

"I've settled into official routine; I'm fixed there hard and fast. It's so with many of us. Most of us recognize the hopelessness of ever pulling out. As I sometimes confess, I am merely one of the unburied dead."

That Compulsory Health Insurance does not in fact prevent sickness nor reduce economic loss as the result of sickness is also proved by the following facts. Before the World War the average loss of time for sickness of the American laboring man was six and two-tenths (6.2) days per year; the German's, nine and two-tenths (9.2) days; the Austrian's, nine and five-tenths (9.5). We are credibly informed that since 1923 the loss of time in Germany has increased another eighty per cent. above the nine and two-tenths (9.2) so that it now stands at approximately sixteen and five-tenths (16.5) as against six and two-tenths (6.2) in America. A fine



showing for Compulsory Health Insurance after forty-eight years of operation!

Let us see what some of the German and English think about the scheme. A high salaried German health insurance official said the following in 1927: "Health insurance is the oldest branch of German Social Insurance. The sickness insurance law of June 15, 1883, was the corner-stone of the proud building for which we were envied by foreign nations before the war. Unemployment insurance will, I hope in the near future, be the capstone of the building." To which Edwin Liek, a practicing physician of Danzig makes the following retort: "This is an expression familiar to physicians, words that we have frequently heard during the past four decades. Only now they affect us differently. In the beginning the doctors believed these dulcet tones; today only *parasitic physicians* or *pure fools* join in this festive song." And again he says, "Social insurance is today organized to fill the feed trough of *bureaucratic drones*." At a recent meeting of the Trade Union Council in Nottingham, England, a resolution was passed unanimously demanding that the Government overhau the Department of National Health.

That the average American citizen is getting better medical services than are the citizens of those countries which have had Compulsory Health Insurance the longest is borne out by the cited statistics, the quoted opinions as well as by a rather extensive personal experience both in this country and in Central Europe.

(The next two articles will show how Social Insurance undermines national character.)

## HOW THE NEW TAX LAW AFFECTS THE PROFESSION.

### INCOME TAX—INDIVIDUAL

Normal—4 per cent. of the first \$4,000 of net income; 8 per cent. of the remainder.

Surtax—1 per cent. on net incomes in excess of \$6,000 to 55 per cent. on net incomes in excess of \$1,000,000.

(Exemptions—Single persons \$1,000; married person \$2,500; credit for each dependent \$400. No earned income credit.)

### INCOME TAX—CORPORATION

13¾ per cent. on net income.

14½ per cent. on consolidated returns for 1932 and 1933.

(No specific exemption.)

### ADDITIONAL ESTATE TAX

1 per cent. on net estates not in excess of \$10,000 to 45 per cent. on net estates in excess of \$10,000,000.

(Exemption \$50,000.)

This tax is in addition to the tax imposed by Section 301 of the Revenue Act of 1926.

### GIFT TAX

¾ of 1 per cent. on net gifts not in excess of \$10,000 to 33½ per cent. upon net gifts in excess of \$10,000,000.

(Exemption \$50,000.)

### MANUFACTURERS' EXCISE TAXES

Lubricating oils, domestic—4c a gallon.  
 Brewers' wort—15c a gallon.  
 Malt, malt syrup, malt extract—3c a pound.  
 Grape concentrates—20c a gallon.  
 Imported crude and fuel oil—½c a gallon.  
 Imported gasoline—2½c a gallon.  
 Imported lubricating oil—4c a gallon.  
 Imported paraffin and petroleum wax—1c a pound.  
 Imported coal and coke—10c per 100 pounds.  
 Imported lumber—\$3.00 per 1,000 feet.  
 Imported copper—4c a pound.  
 Tires—2¼c a pound; inner tubes—4c a pound.  
 Toilet preparations—10 per cent.; dentifrices—5 per cent.  
 Furs—10 per cent.  
 Jewelry sold for more than \$3—10 per cent.  
 Automobiles—3 per cent.  
 Trucks—2 per cent.  
 Auto parts and accessories—2 per cent.  
 Radio and phonograph equipment—5 per cent.  
 Mechanical refrigerators—5 per cent.  
 Sporting goods—10 per cent.  
 Firearms, shells and cartridges—10 per cent.  
 Cameras—10 per cent.  
 Matches, wood—2c per 1,000; paper ½ of 1 per cent. per 1,000.  
 Candy—2 per cent.  
 Chewing gum—2 per cent.  
 Soft drinks; rates on different beverages range from 1¼c to 6 per gallon.  
 Electrical energy—3 per cent.  
 Gasoline—1c per gallon.

## MISCELLANEOUS TAXES

Telephone messages, 10c between 50c and \$1, 15c between \$1 and \$2; 20c over \$2.

Telegram messages—5 per cent.

Cable and radio messages—10c.

Leased wires—5 per cent.

Admission—1c per 10c for charges over 40c.

Issues of bonds—10c per \$100.

Issues of stock 10c per \$100 or 10c per share if no par value.

Stock transfers—4c per \$100 par or 4c per share no par; 5c per share selling for over \$20.

Bond transfers—4c per \$100.

Conveyances—50c on \$100 to \$500; 50c per \$500 in excess.

Produce sales for future delivery—5c per \$100.

Oil pipe line charges—4 per cent.

Safe deposit box leases—10 per cent.

Checks and drafts—2c each.

Boats—\$10 to \$200, according to length.

## POSTAL RATES

Second class—increase in each of zone rates.

First class—3c.

—*The Detroit* of June 20, 1932.

## RADIO TALKS ARE APPRECIATED BY THE PUBLIC

The following letter came to the office of the Educational Committee the day after the first of a series of talks on "The Evolution of Medicine" was given over radio station WJJD:

"I have just heard the first of Doctor M's talks on 'The Evolution of Medicine,' and wish to take this opportunity to tell you how much I enjoyed it. I shall certainly 'listen in' to the remaining two lectures so as not to miss any part of this interesting story. Your station and the Illinois State Medical Society are to be commended upon presenting such an able and interesting speaker."

## HEALTH PROGRAMS FOR LAY GROUPS

The Educational Committee is prepared to schedule hundreds of speakers to present health talks to lay groups. During the last twelve months 518 physicians presented the subject of health to a total of 183,000 people in Illinois. These physicians gave their time, without remuneration, to help in the educational program sponsored by the State Medical Society.

The Committee submits the following suggested topics for health talks:

## MEN'S CLUBS

1. Checking Up Your Body's Assets—"The importance of a periodic physical examination."
2. The Business Man and His Stomach.
3. Health Problems in Illinois.
4. Some Health Problems of the Middle Years—"A discussion of the diseases that endanger middle life, as well as of the general health habits to be followed at this time in regard to food, exercise, recreation, rest, etc."
5. How to Be a Great Grandfather—"Periodic Health Examination."
6. Animal Experimentation in Relation to Human Welfare.
7. What Everyone Should Know About Cancer.
8. Mind Health.

## WOMEN'S CLUBS AND PARENT TEACHER ASSOCIATIONS

1. Health Problems in Illinois.
2. The Hopeful Side of the Cancer Problem—"A discussion of the nature of cancer and an account of the latest knowledge on the subject."
3. Sound Body—Sane Mind—"A discussion of the intimate relation between muscle and nerve and the necessity for recreational and diversional activities and interests as a counteractant to the intensity of modern life."
4. Growing Old Gracefully—"As women reach middle age, sundry health problems confront them. Cancer, high blood pressure, nephritis, and heart disease need to be guarded against, and the less serious conditions, such as excessive adiposity and the nervous adjustments necessary at this time, should receive attention."
5. Before the Baby Comes.
6. Keeping Children's Diseases Away from Your Children—"A discussion for mothers on how to keep their children well, including food, sleep, clothing, fresh air, cleanliness, etc."
7. The Difficult Process of Growing Up—"Preparing the child for adolescence."
8. How Medical Science Protects the Child.
9. Animal Experimentation in Relation to Human Welfare.
10. The Parent and Child Relationship.

## HIGH SCHOOL ASSEMBLIES

1. The Story of X-Ray and Radium—Illustrated with slides.
2. Health and Happiness.
3. Heroes of Health.
4. The Animals Gift to Mankind.

## OTHER SUBJECTS MAY BE SUGGESTED

All requests for speakers should be made through the office of the Educational Committee, Illinois State Medical Society, 185 North Wabash Avenue, Chicago, Illinois—TELEPHONE State 4415.



## Correspondence

### THE MAJORITY OF THE SO-CALLED FREE CLINICS EXIST FOR SELFISH MOTIVES, NOT PHILANTHROPIC

CHICAGO, ILL., JULY 28, 1932

*To the Editor:* An experiment in connection with the clinic evil.

Affairs have reached such a state, that where at first the word "depression" was tabooed, and anyone who used it was regarded as unpatriotically encouraging a psychological assault on the stability of the country (much like the feeling against the slacker during the war), today the word is tabooed only because it has been so popularly used that we are tired of hearing of it.

Physicians find that a substantial part of their practices are seeking the free clinics; some because they are really unable to pay normal doctor's fees, and some who could afford the regular fees, but are penurious when they find that they can be so without the stigma which formerly attached to the indigents who had to patronize charitable institutions. Some of the most industrious and brightest have been driven to this extremity, and from then it is difficult to distinguish those who are merely penurious. The stigma of failure is gone, and as the topic of conversation broadens out, it is not unusual to find former men of affairs naively giving their intimate financial details to comparative strangers, and even boasting of the amounts lost in the crash. And the next step is to go to the clinic as a lark that does not cost anything, but with the serious purpose of really getting something for nothing, and allowing their penuriousness to overcome their pride.

A few examples will suffice.

Case 1. Young woman patient, single, operating a profitable business of her own, and living with her folks who own their own home, well able to pay, had her tonsils removed free of charge by a well-known specialist at one of Chicago's largest hospitals. She had been treated by me, and informed me that she would have come to me for the operation had she not secured it free.

Case 2. Young woman patient, married, both husband and wife employed and receiving a sufficient salary; soon after being discharged by me from a case of acute tonsillitis, had her tonsils removed free at a large Chicago hospital.

Case 3. Eye patient had been coming to me for perhaps ten years, off and on; employed, but probably without much surplus; attended a Chicago eye clinic where the treatment was free, but the fees for laboratory and medicines far exceeded his bill when he finally came to me for attention.

Case 4. Another eye patient with a somewhat similar experience at the U. of C. clinic, except that they charge him \$1.50 per visit. Patient was able to pay reasonable charges.

Originally a doctor's fees were supposed to be an honorarium; he asked nothing, but thankfully accepted voluntary donations from pleased patients. It may not be generally known that there are one or two old time practitioners in Chicago who still have a bowl on the table where grateful patients drop in fifty cents or a dollar, and no bills are rendered. Having this in mind I could hardly quarrel with the doctors who render free service. But I would criticize any clinic which furnished free service without properly investigating the economic ability of the patient to pay. An exceptional few, well-organized charitable clinics in Chicago have field nurses to investigate all patients, and the second treatment is not given if the patient is not a proper subject of charity. Such charities also maintain a clearing house with other charities, by which they prevent duplication of their attentions.

A New York clinic recently reported in the *Journal A. M. A.* a plan to meet the changed economic conditions by furnishing medical services for an annual fee. It included hospitalization for the subscriber and his family, and I believe the annual amount was \$100. They secured their members by public talks by staff physicians, and also by newspaper announcements, which was probably proper for the small town, but would hardly do for Chicago. It was decided to experimentally ascertain whether there was any demand for an annual fee in the eye and ear line in Chicago, and my secretary made up a list from my files containing about 100 names, of those patients who had not visited the office for a sufficient length of time to indicate that they were probably seeking attention at free clinics; and this list included a number of patients who still owed for past services. They were offered a year's attention at an annual fee of twenty-five dollars, plus three dol-

lars for each dependent member of their family, the same not to include hospital or laboratory fees. After the lapse of about a month the results were rather discouraging. One patient who wanted the annual arrangement did not have the necessary money, and concluded to pay per visit as before, but insisted that he could only pay one-half the regular fee. Another patient postponed making the arrangement until such time as he actually required the services again, while several, I am convinced, have not even got that annual fee, much as they would like to take advantage of it, and they no doubt attend free clinics. Judging by this experiment, I conclude that no one individual, working single handed, can recall the patients from the clinics. Possibly the medical society as a group could do much towards educating the public that their own doctors are not exacting and will make such concessions in fees as the patient's financial condition may warrant, and that it is neither necessary nor advisable for them to go to a clinic for attention. Further, the Medical Society should bring about the passage of such laws that will require all clinics to employ a visiting nurse or nurses, who will make report, not only on the hygienic surroundings in which the patient lives, but also on the economic ability of each patient to pay.

Undoubtedly the number of patients who are proper subjects for a free clinic has been greatly augmented in the past two years, but nevertheless many are there under misrepresentation, either expressed or implied. The majority of the so-called free clinics exist for selfish motives, not philanthropic. The clinic may be a feeder for the hospital, which may have one free bed to enable it to escape taxation under the law, and which, for the rest, requires payment of all the usual charges whether the case be clinical or private. The clinic also may furnish customers for the sale of drugs and various therapeutic measures, which are charged for, just as the department stores examine eyes free, because they make a good profit merchandising eye glasses. Or the clinic may desire the patients as teaching material for the students. In all these cases, being anxious for the clinical material, they are not too particular about weeding out those who could afford private attention. If the patient is financially able, he is more de-

sirable for the free clinic as a customer for its x-rays and medicines. The clinic would not weed out such patients if they could. Even at our Illinois Charitable Eye and Ear Infirmary there has been no pretense at investigating patients, and I have seen a number with furs and diamonds take the pauper's oath and come for treatment. There are only an exceptionally few of the clinics that really try to weed out those that should pay, and as suggested above, a law should be passed which compelled all clinics to investigate and report under disinterested supervision. Then it would be recognized that medicine is a philanthropic profession only as relates to the indigent, and that otherwise the physician is as justly entitled to pay for his time as the carpenter or bricklayer.

Sol Rosenblatt, M. D.

30 N. Michigan Blvd., Chicago.

#### SOME PRESSING PROBLEMS IN ALLERGY

J. H. Black, Dallas, Texas (*Journal A. M. A.*, July 2, 1932, points out that in spite of the fact that the treatment of allergic conditions is fairly satisfactory, the fact remains that treatment is largely empiric. Advantage is taken of the fact that allergic persons frequently show skin reactions to their respective allergens to determine the specific allergenic substances, but there are many irregularities found in skin reactivity and the reasons for them are imperfectly understood. Treatment with the substance to which the patient is sensitive frequently produces good results, but there is still much room for argument as to the mechanism underlying the response to treatment. Some of the problems found in an attempt to explain these conditions are due to deficiencies in the knowledge of immunology in general, but some of them may be solved by careful, concerted study by the clinical investigator and the laboratory worker. In this field where animal experimentation may fail to reproduce human reactions, accurate observation of carefully controlled patients may provide the material for the solution of some vexing problems. Of these problems the author discusses the following: (1) basis for hereditary influence; (2) relationship of endocrine organs and involuntary nervous system; (3) relation of reagin to clinical hypersensitivity; (4) reactivity of the shock organ; (5) local immunity or sensitization; (6) rate of absorption of allergen, and (7) sensitization to nonantigenic substances. These points are raised, not with the intention of disparaging the work which has been done, but to call attention again to the fact that there is a great amount to be done if work in allergy is to be placed on a scientific basis, and to remind the clinician as well as the laboratory worker that careful, painstaking observation may assist in the solution of some of these perplexing problems.



## Original Articles

### NEWER CLINICAL CONCEPTS OF BLOOD\*

J. W. SOURS, M. D.

PEORIA, ILL.

For many years the ordinary leukocyte and differential counts, which have been so valuable as diagnostic aids in the differentiation of diseases, have been regarded as adequate. The differential count has recently been modified by Schilling, who has suggested improvements in the conventional counts. Heretofore, the listing of the proportion of cells from the three great centers of white blood cell origin has been regarded as sufficient. Recent progress in hematology has shown that not only are the relative amount and proportion of white blood cells important, but also the relative age of these cells.

Before taking up the modern aspects of the origin and evolution of these cells, let us review some of the opinions of the past. Ehrlich, the proponent of the "Dualistic" theory, was among the first to show that white blood cells should be classified according to their origin from hemopoietic organs. He divided them into the cells of the myelogenous system, the granulocytes, and those of the lymphatic system, or agranulocytes. By means of complex stains he was able to work out the ordinary differential count such as we have today. His views were opposed in the beginning by such men as Weidenrich and Maximow, advocates of the "Unitarian" theory, who believed that all white blood cells were derived from the predecessors of the lymphocytes.

It is only until the present work of Schilling and Sabin that the "Unitarian" theory has been disproved. Schilling has also offered proof that the agranulocytic type of cell has two origins; one type, the monocyte, from the reticuloendothelial system of the body; the other, the lymphocyte, from the lymphatic organs. We have, therefore, a transition from the "Unitarian" to the "Dualistic" and finally to the "Triadistic" theory. The Schilling differential count is based on the last theory.

Arneth, in 1904, modified the differential count. The neutrophil was divided by him into

five groups with sixteen subgroups, wherein most of the nuclei consisted of two, three, four or five lobes, and only a few had an unsegmented nucleus. According to his opinion, in infectious diseases the five and four-lobed nuclei decreased in number, and the nuclei with one or two lobes, which were considered young forms, increased. He called this reversal in the normal count a "shift to the left." If such a shift was not accompanied by a leukocytosis, Arneth considered it a sign of a serious condition. Basing his opinion on the presence of the shift to the left of the nuclei, Arneth predicted the diagnosis, prognosis, and even immunity of the patient.

Within the last five years, Cooke and Ponder have offered an improvement in the Arneth interpretation. Cooke has added "Cooke's Criteria."<sup>1</sup> "If there is any band of nuclear material except a nuclear filament connecting the different parts of a nucleus, that nucleus cannot, for the purpose of the count, be said to be divided." By means of this criterion he has divided the neutrophil count into five separate classes according to the number of lobes. He contends that cells with two nuclear segments are less mature than those with three and so on.

We believe that Cooke and Ponder have simplified the Arneth count and have made it more readily applicable to the average medical practitioner. I am also of the opinion that this study does not take into consideration the origin of white blood cells, the maturation of the same, and does not take into consideration the cells other than granulocytes. These factors are important.

Schilling, on the other hand, was able to prove that those intermediate steps which exist between the myelocytes and the segmented neutrophils have considerable significance (with reference to the body) in certain diseases. He believes that the normal picture of the blood is a complex of cells which are mature and highly differentiated. These normal cells have their preliminary stages of development in the hematopoietic organs and enter the blood as mature elements depending on physiological requirements. He has proved that the blood picture will change as the disease varies and that slight variations in the course of a disease will influence the regulation of the white cells of the blood.

\*Read before Section on Medicine, Ill. State Med. Soc., Springfield, May 18, 1932.

### *Origin and Maturation of the Polymorphonuclear Leukocytes*

The Schilling differential count concerns itself mainly with the nuclear changes in the neutrophilic leukocytes, beginning with a single round or oval nucleus of the myelocyte and ending with the polysegmented nucleus. Maturation is a rather complex process and depends upon a series of factors. It may be divided into three stages. The first of these is found in simple marrow. The young leukocytes are seen scattered along the reticular framework. They lack differentiation. The cytoplasm is faintly basophilic and no granulations or mitochondria are present. The nuclei have little or no chromatin. This primitive reticular cell after division gives rise to a primitive free cell. Basophilia and mitochondria arise, and when these have reached their maximum the cell becomes a myeloblast. This is the type of cell found in myeloblastic anemia.<sup>2</sup>

The second stage has best been described by Sabin.<sup>3</sup> In this period of growth, granulation develops; the basophiles and mitochondria increase, then gradually disappear. The young leukocyte still wandering in the bone marrow begins to show ameboid movement for the first time. Large cells are found at this stage because there is cell division and growth throughout.

Stage three marks the end of maturation. The cells are found to be more or less uniform in size. Definite granulations, constant in amount, are seen. The cytoplasm has lost its basophilic tendency and assumes a neutral tint. The uniformity of size is due to a cessation of division. These factors mean functional maturity.<sup>4</sup> These cells are found in the peripheral blood and constitute the polymorphonuclear cells seen in the Schilling differential count.

A knowledge of the changes in cell morphology during the maturation process is very important from the practical as well as the theoretical standpoint. This differentiation between monocytes and juvenile cells sometimes hinges on the presence or absence of granules, and a blue or neutral tint of the cytoplasm. If one remembers that a juvenile polymorphonuclear leukocyte has a neutral tinted cytoplasm and many granules, he will avoid one of the pitfalls encountered in making the count.

### *Factors Regulating the Maturation of Polymorphonuclear Leukocytes*

With the fact in mind that bone marrow is an organ in which these cells originate and develop, and that it holds a small store of cells with a ready potentiality toward multiplication, the question of the factors governing this multiplication is intriguing. It has been shown that the factor controlling the proportion of collapsed erythrocytic capillaries to open venous sinusoids is important.<sup>5</sup> Vasomotor nerves are thought to play a large role in regulating this proportion. Areas of prolonged low oxygen tension are present wherever a spastic condition of a sinusoid is present, and it has been thought that low oxygen tension favors maturation. A chemical factor due to the invading organism may also influence maturation. Yamamoto<sup>6</sup> cut the nerves of the leg in a rabbit and four days later streptococci were injected intravenously. Later he studied the bone marrow and concluded that it was stimulated by some factor peculiar to the invading organism. There is no doubt that both a vasomotor and a chemical factor stimulate maturation.

### *Factors Regulating the Delivery of Mature Forms to the Circulating Blood*

It has been shown by Sabin that leukocytes enter the blood stream rhythmically and with small hourly accessions.<sup>7</sup> A larger rise occurs in the afternoon and at midnight than at any other part of the day.<sup>8</sup> This rhythmic pattern has been shown to persist both in leukopenia and in leukocytosis. A reciprocal relationship between the third stage of myelocytes and early leukocytes occurs. During a given length of time a certain number of senile leukocytes are used up, therefore, a certain number of younger forms must mature. In infectious processes an imbalance of the rhythmic outpouring occurs because certain numbers, depending on the severity of the infection, of senile leukocytes are killed. Infection also, as shown above, stimulates maturation of the younger forms. We have then an acceleration of the process of delivery. The blood picture depends on the readiness of response of the bone marrow, and the severity of the infecting organism.

The breakdown of body tissue may also play a role in the delivery of younger forms into per-



ipheral blood. Of the many substances that have been shown to cause a leukocytosis, the action of nucleic acid is most striking. Its effect has been studied and it was found that a massing of leukocytes around patent sinusoids, and a marked diapedesis, occurred when this substance was introduced.<sup>10</sup> Later studies showed the vacant areas from which the granulocytes had been drawn. Other investigators, however, conclude that the chemotactic factor of leukocyte response is due to an increase of substance in the body that afford the normal stimulus.<sup>11</sup>

The Schilling differential count is thus based primarily upon the changes occurring in the polymorphonuclear leukocyte. These changes, in turn, are influenced by maturation and chemotactic factors, and determined by a delivery of cells from reciprocal relationship between late stages of marrow cells and mature cells in peripheral circulating blood. Schilling has described four effects:

1. Weak irritation, which produces only a functional change in the blood expressed in the mobilization of the mature cellular response.
2. Intermediate irritation; a formative reaction by the addition of regenerated rod-like and other immature forms.
3. Severe irritation in which there is an appearance of neutrophilic young forms and myelocytes.
4. A very severe irritation produced by paralysis of the central and destruction of the peripheral cells, in which promyelocytes, myeloblasts and myeloblastic elements appear.<sup>12</sup>

Schilling believes that the first effect of toxic influence on the bone marrow is to call forth all mature cells which may be held in reserve in the bone marrow. If the infection or toxic influence persists or increases, the mature cells are destroyed, thus creating an imbalance. Should the infection go on, the maturation process again increases, and the bone marrow forms more granulocytes of the immature form than it can care for in the bone marrow; reciprocal response appears and more immature cells are found in the peripheral blood. This, consequently, is a further shift to the left and represents the regenerative shift in contradistinction to the degenerative shift of old forms. In the meantime, the eosinophils have disappeared and a decrease

in the mononuclears from the reticuloendothelial system has occurred. Lymphocytes, also, have decreased relatively. This picture is the one commonly seen in acute infectious processes. If the patient recovers, a decrease in the number of neutrophils, a disappearance in myelocytes and juvenile cells, and a reappearance of eosinophils and monocytes occurs. When the lymphocytes reappear and are relatively increased, one is able to say that a reparative process is taking place.

We have used and found valuable a factor introduced by Gerard and Boerner,<sup>13</sup> in which the mature granulocytes are divided by the total number of immature granulocytes. By this means we record the degree of shift toward the right or left. The normal total mature granulocyte count is sixty-three and this divided by the normal total immature count of four is fifteen. A shift toward the right would increase the numerator of this factor and consequently gives us a number greater than fifteen. It means a good prognosis. An increase in the denominator decreases this number and represents a shift to the left. By setting arbitrarily the multiples of five, we have formulated a device to measure the degree of shift to the left. Thus, a number between ten and fifteen is a slight shift, between five and ten a moderate shift, and between one and five is a marked shift and a poor prognosis.

*Case 1.* K. U., a boy, aged 14 years, was seen on November 18, 1930. On November 15, he began to have pain in the lower abdomen about 9:20 p. m. About 3 a. m., November 16, the pain became localized in the lower right abdomen. The examination revealed a distended abdomen. Tenderness was present throughout the whole abdomen except in the left lower quadrant. Temperature 101.6° F., pulse 112, respirations 26. A diagnosis was made of a ruptured appendix with peritonitis.

The temperature and pulse increased during the next day and the patient became somewhat delirious. On November 20, he was given 500 cc. of 25 per cent. glucose solution intravenously. On November 21, his temperature fell from 104° F. to 101° F. The delirium decreased and the pulse improved. The abdominal distention began to lessen on November 22, and finally disappeared. On November 23, it was noted that a mass, the size of an orange had formed in the right lower quadrant. The patient's condition continued to improve. On December 13, he was operated upon and a small amount of pus well walled off was found adjacent to an enlarged and inflamed appendix. He then had an uneventful convalescence with the exception of a small abscess in the parotid gland which had to be drained.

Table 1. Schilling Differential Counts

Date	W.B.C.	Eo.	Juv.	Staff.	Seg.	Mono.	Lymph.	N.I.
11/18/30	6,800	0	2	15	74	2	7	4.3
11/19/30	6,200	0	3	19	69	2	7	3.1
11/20/30	7,000							
11/22/30	11,600							3
11/24/30	11,400	0	3	18	68	3	8	3.2
11/26/30	14,800	0	2	18	70	3	7	3.5
11/28/30	14,400	0	2	18	74	1	7	3.7
11/30/30	13,600	0	2	12	75	3	8	5.3
12/ 2/30	18,000	1	1	12	73	5	8	5.6
12/ 4/30	13,200	0	2	13	70	3	12	4.6
12/ 6/30	12,600	2	2	8	66	5	18	6.6
12/ 8/30	14,000	1	2	10	69	2	16	5.7
12/10/30	13,000	5	0	8	73	2	12	9.1
12/11/30	14,000	6	1	10	68	2	13	6.2
12/12/30	12,600	4	0	10	70	2	14	7.0

Comment: This case illustrates a peritonitis, secondary to an appendicitis, going on to recovery. It is noted that the nuclear index was under 5 on entrance and that it continued this way for about three weeks. A degenerative shift with a marked tendency toward the regenerative side is seen throughout. This indicated a favorable prognosis. The decision of the time to operate safely was made by noting the decrease in the juveniles, an increase in the eosinophiles and lymphocytes, and an increase in the nuclear index. An interesting point in this analysis is the decrease in staff forms with a concurrent increase in the total white count. We have seen this several times and have noted that it means a good prognosis.

Case 2. J. M. T., a woman, aged 62 years, was seen in consultation on March 16, 1931. On March 8, 1931, the patient fell and fractured her left femur. On March 10, the abdomen became distended. The following day she began to vomit bile-stained material. It had been noticed that when her bowels moved the distention of the abdomen would lessen, but that this distention would return in a few hours. She was given normal saline solution by hypodermoclysis and nothing was given by mouth. The physical examination revealed a distended and tympanitic abdomen. The eyes were somewhat sunken and the tongue was dry. A diagnosis of paralytic ileus was made due to autolytic peritonitis, from probable injury to the liver or bile passages. The patient was given normal saline solution by hypodermoclysis until March 16 when she was put on a liquid diet. She was found to have a parotid abscess on March 21. This was incised and drained and the patient made an uneventful recovery.

Table 2. Schilling Differential Count

Date	W.B.C.	Eo.	Juv.	Staff.	Seg.	Mono.	Lymph.	N.I.
3/16/31	19,600	0	0	14	74	4	8	5.3
3/17/31		1	0	11	77	4	7	7.0
3/18/31	18,800	0	0	9	75	6	10	8.3
3/19/31	24,800	0	0	9	85	2	10	9.5
3/20/31	24,800	1	0	5	79	6	9	15.8
3/21/31	33,600	1	0	6	80	5	8	13.3
3/22/31	24,000	1	0	8	76	5	10	9.5
3/23/31	17,800	1	0	5	78	6	10	15.6
3/24/31	10,800	1	1	5	69	6	19	11.5

Comment: This case illustrated a progressive increase in the nuclear index paralleling a progressive decrease in the staff forms. That a favorable prognosis could be made is indicated by the fact that throughout the course no juveniles were found until the nuclear index was over 10. An interesting point in these series of counts is the count of March 21, 1931, at which time, the total count rose 9,000 and fell again the next day to its previous level, the nuclear index meanwhile imitating this fluctuation. We have found this to be indicative of a complication remote from the original trouble. In this particular case it indicated a parotitis.

Case 3. O. E., a man aged 45 years, was referred to us on January 24, 1931. About 10 a. m. the morning of the first day he was seen, he was seized with pain in the center of his abdomen. The pain localized itself in the right lower quadrant of his abdomen about 4 p. m. An examination revealed a tenderness on pressure over McBurney's point. The remainder of the physical examination was negative. An appendectomy was done and the appendix was found to be acutely inflamed and greenish-gray in color.

It was noted on the third day that the abdomen was becoming distended. The patient also complained of some abdominal pain, but this was relieved when the patient expelled some flatus. The temperature at this time was between 99° F. and 100° F. On January 29, 1931, the patient's temperature rose to 102.8° F. and the abdomen, which, heretofore, had been slightly distended, became more distended and tense. He became delirious on January 30, 1931, and presented the typical picture of peritonitis. He was given nothing by mouth; normal saline solution was ordered by hypodermoclysis, and the patient was given 20% glucose solution, 300 cc. twice a day for the next five days. His clinical picture then changed and the patient made an uneventful recovery.

Table 3. Schilling Differential Count

Date	W.B.C.	Eo.	Juv.	Staff.	Seg.	Mono.	Lymph.	N.I.
1/24/31	17,900	0	0	0	87		13	
1/31/31	5,750	0	2	11	40		47	3.1
1/31/31(a.m.)	4,775	0	2	8	52		38	5.2
1/31/31(p.m.)		0	5	14	52		31	2.7
2/ 1/31(a.m.)	9,000	0	2	10	61		27	5.1
2/ 1/31		0	0	9	59		27	6.5
2/ 2/31		0	2	10	67		21	5.6
2/ 3/31		0	1	4	81		14	16.2
2/ 8/31		0	0	2	87		11	43.5

Comment: This case illustrates a severe shift to the left incidental to a peritonitis coming on a few days after an appendectomy. The nuclear index illustrates nicely the fluctuation going on in the bone marrow. A relative increase in the agranulocytes is seen in the regenerative shift. It is seen that these return to normal and decrease relatively as soon as the bone marrow begins to revive.



*Case 4.* E. W., a young woman, aged 26 years, entered the hospital on January 5, 1931. Five weeks before she began to have pain in the right lower quadrant of her abdomen. The pain developed gradually. Her temperature at that time had risen as high as 104° F. Three weeks later this pain left the right lower quadrant and shifted over to the left lower quadrant. A hard round mass about six inches in diameter was found in the left lower abdomen. No rigidity of the muscles was present. A diagnosis of an ovarian cyst twisted on its pedicle was made. The abdomen was opened on January 18, 1931, and a large cyst eight inches in diameter, twisted on its pedicle and filled with pus, was found. A moderate secondary anemia had been present before the operation, and continued, so on January 20, 1931, twelve days after the operation, a blood transfusion was given. Her further convalescence was uneventful and she left the hospital on January 27, 1931.

Table 4. Schilling Differential Count

Date	W.B.C.	Eo.	Juv.	Staff.	Seg.	Mono.	Lymph.	N.I.
1/6/31	19,200	0	0	4	80	2	14	20.0
1/7/31	16,800	0	0	6	79	5	10	13.1

*Comment:* This case illustrates the fact that even with a large amount of pus within the abdominal cavity the nuclear index may be normal. It serves to illustrate that the Schilling differential count gives one an insight into the defensive forces elaborated by the bone marrow. In this case the pus was well walled off and little absorption was taking place at the time of the operation. This is illustrated by the fact that a degenerative shift had taken place and the total white count was increased. We noted that a reduction in the white count was also occurring. Without the Schilling differential count this would not have been taken as a good sign, but the decrease in the nuclear index indicated that the time to operate was at hand before any further reduction occurred.

*Case 5.* B. H. G., a woman, aged 60 years, was seen on June 17, 1931. At 10:00 p. m. she complained of pain in her lower abdomen. Examination revealed tenderness over the right lower quadrant of her abdomen. Her temperature was 99.2° F., her pulse 84. Examination of the urine was negative. She was seen again later on in the night and an appendectomy was recommended. She refused an operation until her husband came from Chicago at 3:00 a. m., the next morning.

Upon opening the abdomen several ounces of yellow fluid welled up. A perforation was seen close to the tip of the appendix. The appendix was removed and the abdomen was then closed with drainage.

She was put on the Ochsner treatment for peritonitis the next morning. In addition to this she was given 300 cc. of 25 per cent. glucose solution twice a day throughout her illness. Her temperature rose to between 103-104° F. the second day after her operation and to 105.6° F.

on her fifth postoperative day. Her pulse ranged between 88 and 110. She appeared to be recovering. On the eighth postoperative day her temperature had fallen to 101° F. and her pulse to between 80 and 94. In spite of the apparent recovery this patient was undergoing, an unfavorable prognosis was made. On the tenth postoperative day an abscess which had formed in the subcutaneous tissue of the abdomen was incised and drained. The patient's temperature continued to rise and she died on her twelfth postoperative day with a temperature of 108.4° F., and a pulse of 106.

Table 5. Schilling Differential Count

Date	W.B.C.	Eo.	Juv.	Staff.	Seg.	Mono.	Lymph.	N.I.
6/17/31 (8:15 p.m.)	8,100							
(11:00 p.m.)	8,700							
6/18/31 (3:00 a.m.)	9,600	0	0	11	75	5	9	6.8
6/19/31		0	0	13	76	1	10	5.7
6/21/31		0	1	12	70	0	17	5.4
6/21/31		0	3	12	73	1	11	4.7
6/22/31		0	2	18	60	1	19	3.0
6/23/31		0	3	10	73	0	14	4.7
6/24/31		0	3	6	86	2	3	9.3
6/26/31		0	4	6	84	1	5	8.4
6/27/31		0	3	7	85	0	5	8.5
6/28/31 (2:10 p.m.)		0	3	10	82	0	5	6.3
(6:00 p.m.)		0	5	9	80	0	0	5.7

Turk cells—4, Normoblasts—2.

*Comment:* This case illustrates an overwhelming infection in an individual with little or no resistance in so far as her white blood cells are concerned. Three counts less than 10,000 were encountered before operation. No eosinophiles were seen in the series of Schilling counts done. We have seen this occur but a few times in the great number of series of Schilling counts and have observed that if an aneosinophilia persists past the sixth postoperative day, the infection usually overcomes the patient. The fact that at only one time an increase of the staff forms over 12 was encountered is indicative of the fact that the bone marrow response of this patient was impaired. This is also emphasized by the fact that the juvenile cells rose above 4 just before she died. A lack of repair is indicated by the fact that the monocytes were decreased and in some slides absent throughout the whole series. In an ordinary case of appendicitis going on the recovery, the monocytic response starts about the third day and reaches its height about the seventh day. If this response is seen, we are certain the patient is going on to recovery. This is lacking in this case as these series show. The lymphocytic stage of subjugation of the infection occurs between the seventh and tenth day after operation. It represents the final overcoming of the infection by the body. It is

seen here that this is likewise lacking in this case. The nuclear index shows that this patient reached the climax of her resistance to the infection on her seventh postoperative day. Clinically she reacted in much the same manner. Her relatives had great hopes of her recovery at this time. We too might have been misled if the Schilling on the subsequent days had not shown the unfavorable picture that it does. By this means we were able to give a correct prognosis, unfavorable as it was.

*Case 6.* W. L., male, aged 18 years, was seen about 9 p. m., January 2, 1932. Patient took sick December 31, 1931, with a pain across the lower abdomen. The morning of his entrance into the hospital the pain localized in the right lower abdomen, and he vomited for the first time. He had been seen by his family doctor for two months before with a similar complaint and the diagnosis at that time was acute appendicitis.

Physical examination on entrance revealed tenderness over McBurney's point, slight rigidity of the muscles over the right lower quadrant of the abdomen, and a positive Brittain's sign. The remainder of the examination was negative. Examination of the urine was negative.

This patient was operated upon immediately that evening. The appendix was found to be surrounded by adhesions and upon accidentally separating these, a free fluid escaped to the outer side of the cecum. The appendix was clamped, ligated, cut off flush with the cecum and the abdomen was closed with drainage. The appendix was opened after the operation and was found to be gangrenous especially at the tip. The patient then underwent an uneventful convalescence and left the hospital January 15, thirteen days after the operation.

*Table 6. Schilling Differential Count*

Date	W.B.C.	Eo.	B. Myel.	Juv.	St.	Seg.	Lym.	Mono.	N.I.
1/ 2/32	29,900	0	0	0	0	6	80	4	10
1/ 4/32		0	0	0	0	0	87	7.5	5.5
1/ 5/32		0	1	0	0	1	78	16	4
1/ 6/32		0	0	0	0	0	78	12	10
1/ 7/32		3	0	0	0	1	84	9	3
1/ 8/32		1	1	0	0	0	80	11	7
1/ 9/32		1	0	0	0	0	85	10	4
1/11/32		2	0	0	0	1	77	13	7
1/13/32		0	0	0	0	1	67	32	2
1/14/32		3	0	0	0	0	80	15	2
1/15/32		1	0	0	0	1	59	35	3

*Comment:* This case illustrates the value of a Schilling differential count to determine the operability of a patient suffering from gangrenous appendicitis. This patient was seen 43 hours after the initial attack. Ordinarily it has been considered that after 36 hours, the appendix usually perforates and the patient has a peritonitis. A diffusing peritonitis should be treated medically in the hope that the process does not continue to spread. And surely it has been long

recognized that a diffuse peritonitis should not be operated upon, but treated medically to combat the infection by enhancing the patient's individual resistance to the infection.

We believe that in this particular case the Schilling differential count told us this lesion was of the circumscribed type, even though we were sure before the operation that the appendix was gangrenous. It is seen that the total white count was very high on entrance. With this we have but a slight shift toward the left as expressed by the nuclear index of only 13.6. The monocytes were increased to 10 on entrance. We have always taken this to be a good sign of local defense reaction, that is to say, as far as the tissues contiguous to the appendix are concerned, there is an attempt to localize to the region immediately about the appendix. If the Ehrlich classification had been adhered to, I do not believe the patient would have been operated upon. The total number of polymorphonuclears are 86 and this, I believe, has been considered as unfavorable to operation. This is better illustrated by the Schilling differential count which was done January 4, at which time there is but an increase of one in the polymorphonuclear count, practically the same as the count immediately above it. But the concept is changed much because it is not the total number of granulocytes present, but rather the age of these that is of value. This represents a transition from a slight shift to the left to a marked shift to the right. A return of eosinophils on the fifth day after operation is found. We are always glad to see these cells appear in a series of counts, for to us they mean that the acuteness of the infection has disappeared. The eosinophils persisted, with the exception of one day, until the patient was discharged from the hospital. The lymphocytic subjugation of the infection is illustrated in the last three counts in table 5. Concurrent with this is found a relative decrease in segmented cells. The nuclear index shows that at no time during the patient's stay in the hospital was he in great danger of being overwhelmed by his infection.

#### Conclusions:

1. A series of Schilling differential counts is of infinitely more value than one alone.
2. The Schilling differential count is a valu-



able aid in evaluating the progress of a patient whether toward recovery or dissolution.

### REFERENCES

1. Farley, D. L., and Huston, S. C., and Reisinger, J. A.: *Am. Jour. Med. Sec.*, CLXXX, p. 336.
2. Sabin, F. R.: *Bone Marrow. Physiological Reviews*, 1928, VIII, p. 191.
3. *Journal of Experimental Medicine*, 1924, XL, p. 845.
4. Sabin, F. R.: *Bone Marrow. Physiological Reviews*, 1928, VIII, p. 191.
5. Doan, C. A., and Zerfas, L. G.: *Journal of Experimental Medicine*, 1927, XLVI, p. 511.
6. *Virchow's Archives of Pathological Anatomy*, 1925, CLVIII, p. 62.
7. *Johns Hopkins Medical Bulletin*, 1925, CLVIII, p. 14.
8. *Journal of Pathology and Bacteriology*, 1927, XXX, p. 1.
9. Sabin, F. R.: *Bone Marrow. Physiological Reviews*, 1928, VIII, p. 191.
10. Doan, C. A., and Zerfas, L. G., and Warren, S., and Ames, O.: *Journal of Experimental Medicine*, 1928, XLVII, p. 403.
11. Bacon, D. K., and Novy, F. C., and Eppler, H. H.: *Archives of Internal Medicine*, 1922, XXX, p. 229.
12. Rosenfeld, E. B.: *Vrach. Gas. Petrograd*, 1927, XXXI, p. 175.
13. *Journal of Laboratory and Clinical Medicine*, 1930, XVI, pp. 300-311.

### DISCUSSION

Dr. Lyman C. Murphy, Chicago: I think that Dr. Sours deserves much credit for his excellent presentation of this rather recent development or improvement in the differential blood count. I say recent; of course, for a number of years attention has been paid more or less to the study of immature forms of leukocytes since Arnett published his results of his own studies, but it was not until Schilling had simplified Arnett's work that interest has been renewed in this phase of leukocyte counting.

As far as I can gather, the interest in this phase of leukocyte counting is somewhat sporadic, that is, some hospital laboratories pay no attention to the Schilling count whatever; some do them on request, and others do them as a matter of routine. Many use a modification of this Schilling count and simply enumerate the non-filament or non-segmented forms as compared with the total segmented forms.

I think that one should remember that the laboratory work in any case, as a rule, only amounts to about 10 per cent. of the evidence in that case; and bear in mind that the enumeration of immature cells or new additions like this do not offer any short cut to the diagnosis or prognosis of a given case. But bearing this in mind I am sure that there are many instances where enumeration of the immature leukocytes will be definitely helpful.

Recently at a hospital staff meeting in Chicago I heard a doctor present a case in which he was called as a consultant. He said that he felt sure that he was dealing with a surgical belly and ordered a leukocyte count. The report came back from a good laboratory with a total count of 6,000. The doctor stated that on account of this normal leukocyte count he hesitated as to what he should do and finally decided to wait. On the following day the patient was growing worse and he decided to operate in spite of the leukocyte count,

and found a gangrenous, ruptured appendix. The patient died a few days later. This doctor then stated that in this case the laboratory work was not only not helpful but actually harmful.

I think that this is an instance in which the Schilling count, showing a high percentage of immature cells, in spite of the low total count, would have shown this doctor that he was dealing with a severe infection and the patient might have had a better chance with operation a day earlier.

The other type of case in which the Schilling count may be of value is, as stated by Dr. Sours, the case of acute infection apparently going on to recovery with no definite untoward symptoms and return to normal of the total count when the Schilling count shows a persistent shift to the left and the prognosis invariably is bad.

For these reasons I believe that the Schilling differential count has a definite place in the total and time-honored differential count of leukocytes in all cases of acute infection.

### THE USE OF BICHLORACETIC ACID IN SURGERY\*

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CHICAGO

Apart and independent of the consequences of the general depression, there are additional causes for the economic difficulties in which the rank and file of the medical profession find themselves today. I refer to the fact that the medical profession has gradually permitted certain functions that legitimately belong to it, to slip away. In this short article I wish to call attention to a remedy which I have found of considerable value, a remedy which if generally used would relieve a great deal of discomfort and pain and incidentally materially increase the incomes of the members of the medical profession.

Corns and callouses probably cause civilized man and particularly woman more discomfort, inconvenience and nearly as much pain as any other ailment. As long as shoemakers and women are more interested in style than in efficiency and comfort, the human race will continue to be thus afflicted.

To those who have reached the age of discretion and insist on getting foot-wear that fits the feet, there is now available a remedy which offers quick and permanent relief from corns and callouses. For those who persist in wearing ill-fitting, conventional shoes it offers at least tem-

\*Read before the Surgical Section of the Illinois State Medical Society at Springfield, Illinois, May 18, 1932.

porary relief. I refer to full-strength bichloroacetic acid. Glacial acetic acid has long been recognized as a corn remedy. Trichloroacetic acid is very effective for cauterizing moderately swollen and congested mucous membrane covering the inferior turbinates but as far as I have been able to find bichloroacetic acid has never before been advocated in surgery.

Pure bichloroacetic acid, which is here recommended for the treatment of corns, callouses, and warts, is a clear, colorless liquid at room temperatures. It is somewhat corrosive to normal skin and consequently has to be used with care. Professor Louis Kahlenberg of the Department of Chemistry of the University of Wisconsin, as far back as 1919 called my attention to the fact that bichloroacetic acid dissolves keratin, the chief constituent of corns, callouses and warts. I have used it since then on a considerable number of patients, for the relief of these conditions, to their and my complete satisfaction. The method of using bichloroacetic acid as described hereafter is substantially that suggested to me by Professor Kahlenberg. Bichloroacetic acid is still a relatively little known remedy and some care has to be exercised in order to procure a pure product. Reliable wholesale drug houses carry pure bichloroacetic acid in stock.

#### DIRECTIONS FOR USE

1. With a camel's hair brush apply a thin film of vaseline around the corn, callous or wart so that the bichloroacetic acid cannot come in contact with the surrounding normal skin. Be careful not to get any vaseline on the area to be treated.

2. With a glass rod apply a little of the liquid to the lesion, just enough to moisten the surface well. The liquid will be absorbed in a minute or two. Then apply a little more of the liquid and repeat this two or three times depending upon the thickness of the horny layer. It is well to have a little sodium bicarbonate moistened with water into a paste at hand, to apply quickly in case some of the bichloroacetic acid should come in contact with the normal skin. So far as my experience goes there is, however, no particular danger in applying too much directly to the corn or callous. These structures are thickenings of the horny layers of the skin and the bichloroacetic acid seems to have an affinity for

this tissue and not to penetrate beyond it to the underlying normal skin if reasonable care is exercised. After the bichloroacetic acid has soaked in well, remove the vaseline thoroughly with a cotton pledget and cover the area with a thin film of flexible collodion and let the patient go about his business with directions to return in from three to five days.

3. When the patient comes back cut the hardened area off with a sharp scalpel and repeat the treatments described under one and two if necessary. Two to four treatments have permanently cured every case of callous or corns that I have treated during these years providing the patient has thereafter worn properly fitting shoes.

The two chief faults of the foot-wear worn by Caucasians in general are, undue pressure over the instep from above, and insufficient treading surface. The former causes corns on the little toes by forcing the anterior portion of the foot outward causing constant pressure of the little toe against the uppers. The latter by the uneven pressure upon the sole of the ball of the foot will sooner or later result in the formation of callouses. A less common fault of modern shoes and yet all too common among women is crowding a number five or six foot into a three or four shoe. This often results in corns on one or more of the other toes.

Shoe manufacturers seem never to have heard of the third dimension of space. The length of the shoe is indicated by a number and the width by a letter but the height of the instep has received little or no attention with the result that the higher the instep the individual is blessed with from birth, the more likely he is to have difficulty in getting fitting shoes and the more certain he is of developing corns on his little toes. If one in buying shoes will insist that there be no undue pressure over the instep and that the treading area be the full width of the sole of the foot he will never be troubled with either corns or callouses. If these have already developed he can be permanently relieved of them by the proper use of bichloroacetic acid and thereafter wearing shoes that fit the foot.

If there is any group that knows less about the requirements of foot-wear than the manufacturer, it is the average shoe salesman. A common experience when one wants to buy a pair of shoes is about the following: A shoe clerk tries



several pairs on your foot and if none of them fit perfectly, as is usually the case, he will pick out the nearest fit with the observation: "Wear them a week or so and they will fit nicely." Both the salesman and the customer seem not to know or to have heard of the physical law "that action and reaction are equal and in opposite directions;" that a shoe which has to be "broken in" also "breaks in" the foot at the same time and to about the same degree.

Many articles on proper foot-wear have been written from time to time but few of them have stressed the pressure on the instep and the inadequacy of the treading surface as strongly as they should. The latter point, however, is well brought out by Grossman<sup>1</sup> who says: "The writer has observed by actual measurements that the average foot is one inch wider than the shoe usually worn." If all or even many customers would insist on being properly fitted, the shoe manufacturers and shoe stores would soon supply the kind of footwear that the public wants and should have.

As stated before, not to get a fitting shoe causes a good deal of discomfort and a good deal of expense to the individual. A prominent woman patient told me not long ago that for twenty years she had been going to a Chiropodist every four weeks and paying him three dollars a treatment in order to have reasonable foot comfort. This has been secured at an outlay of approximately seven hundred fifty dollars. She has had permanent relief for twenty-five dollars; tough on the Chiropodist but good for the patient and the doctor.

The following is a typical though rather severe case representing this general type of ailment:

Mrs. G. F., aged 57 years. Has had trouble with corns and callouses for many years; much worse past year; recently very painful, difficult to walk. Has been wearing arch supports, metatarsal pads and various kinds of pads between toes. Moderate bunions both feet not causing any trouble however. Right foot very painful, corns on third and fifth toes, thick callous on ball of foot two and three-fourths by two inches. Left foot, small painful corn on fifth toe, thick callouses on ball of left foot two and one-half by one and one-half inches. Moderate ingrown toe-nail on great toe. No evidence of flat foot or weakness of transverse arch on either foot. Calf muscles soft and well developed. Width of ball of foot four inches, working shoe worn today three and one-fourth inches though patient says this shoe is wider than one usually worn. All pads discarded. Advised to get wider shoes.

April 11, 1932: Corns and callouses treated with bichloracetic acid.

April 16, 1932: Corns and callouses trimmed. Thick layer of horny material removed from balls of both feet. Areas again treated with bichloracetic acid.

April 23, 1932: Corns and callouses again trimmed. Another thick layer removed from callouses. Corns and callouses again treated.

May 6, 1932: Thin layers of corns and callouses removed. Underlying skin perfectly normal in appearance and feel. Patient expressed great satisfaction at comfort achieved. Feels no need nor desire for all the paddings.

Even those who will not wear sensible, well-fitting shoes can be kept relatively free from corns and callouses by this method by having a treatment every three months. This method has a number of distinct advantages over all methods with which I am familiar. It is painless, permanent, leaves no scars, in fact, leaves the skin pliable, smooth and perfectly normal in function and appearance.

The fifteen to twenty-five dollars that can be charged and collected will buy a good many more groceries and pay more office rent than will the bills rendered for laparotomies and not collected and not collectable after the hospital and special nurses have been paid. In addition the patient will be saved considerable money by the physician doing a better job than the Chiropodist can do or at least does do. I have been informed by the Department of Registration and Education of Illinois that forty-four Registered Chiropodist Licenses were issued during 1931. Publication number 15 of the Committee on the Costs of Medical Care states that there are approximately five thousand Chiropodists practicing in this country. The public would be far better served if the members of the medical profession would when making routine general physical examinations carefully examine the feet of their patients and the shoes they wear, and advise them about their foot-wear in order to relieve them of their foot troubles. This is a problem well worth serious study and consideration.

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#### DISCUSSION

Dr. I. F. Harter, Stronghurst: Dr. Ochsner did not tell how to apply this medicine.

Dr. John J. Gill, Chicago: I am not in the habit of treating corns but once in a while they do come in. I have used salicylic acid with excellent results. I think dichloracetic acid would be well worth using.

As Chairman of the Committee on U. S. P. and N. F. of the Chicago Medical Society, I have been trying to persuade the doctors to use the things which are avail-

1. Grossman, Jacob, M.D. Common avoidable foot ailments. Medical Review of Reviews, March, 1932.

able through the drug store instead of patent preparations which are stealing money away from them. When you hand a patient something that comes from a pharmaceutical house, he will the next time go to the drug store and buy it over the counter. Druggists are each day sending out prescriptions over the counter that are for proprietary preparations instead of for things written out by the doctor. It is easy to write a prescription if you bear in mind the instructions you had in school about soluble substances, sweetening agents and solvents. I think if physicians will pay more attention to their own prescription writing they will do better. Such wholesale prescriptions can never be satisfactory because when a prescription is put up for a great number of people it cannot be suited to the individual requirement. You must keep your prescription limited in amount. This is off the subject but at the same time it comes back to the economic side which Dr. Ochsner brought up. Never prescribe a larger amount of medicine than the patient can use for immediate needs. Some change may occur, some symptom may arise that will require a change in the prescription. You can use the same drugs over and over again by varying the mode of application. Use compound tincture of cardomom one time, the next time use elixir of glycyrrhiza or vary your solvent and you can have a different prescription. When you are doing that you can use the same active ingredient for a half dozen in the family but by varying the vehicle they will not know. Do not prescribe aspirin but prescribe acetyl-salicylic acid; do not prescribe it in plain powder form or tablet; the taste is too characteristic. Add a few drops of oil of wintergreen or mix it with any simple thing like compound licorice powder to cover it up and the patient will not know what he is taking.

Dr. J. A. Cousins, Chicago: I want to ask Dr. Ochsner a question. My observation has been that while there are about 45,000 doctors in this country there are about fifteen million practising medicine. How is he going to keep this remedy out of the hands of the chiroprodists because if it has any virtue they will use it immediately

Dr. A. L. Nickerson, Kankakee: On the floor where I practise there are two chiroprodists and one of them is using my waiting room. I have learned considerable about their methods. I understand the late Dr. John Dill Robertson was president of one of their colleges and that a quite famous surgeon in Chicago is a teacher in the school. Is there any ruling in the Chicago Medical Society on the standing of men who teach in these schools?

Dr. Edward H. Ochsner, Chicago (closing the discussion): The question the last gentleman asked is very important. Its solution is up to the rank and file of the medical profession. Ninety-nine times in a hundred medical men have the first chance at the patients, and if they let the patients slip away to the chiroprodists it is their own fault. As medical men we have been too much concerned about gall bladder disease, appendicitis, thyroid and prostatic diseases and have too often neglected the common ailments. Shortly after Ehrlich's side chain theory first came out, I looked through the

examination questions asked by the various state boards as published in the Journal of the American Medical Association. In every one of the sets there were several questions on the Ehrlich's side chain theory. What has this theory to do with the actual practice of medicine? Very little, if anything. The proof of this is the fact that now it is rarely being asked in examination questions. Today the students are asked many similar unessential questions such as the probable causes of pernicious anemia. In order to pass the poor student has to know the answers not one of which is probably correct. Our professors are spending too much time going into details about the rare things in medicine and too little about the common ailments. I have had to deal with several hundred internes in the last thirty-five years and they are becoming more and more learned and theoretical and less practical. I have not come across a single interne in years who can properly strap a chest or who knows how to treat a common cold. On a number of occasions I have been called in consultation by young men to find them confused and unable to make a diagnosis of some simple ailment or unfamiliar with some valuable but simple remedy. Twice these young men have said substantially the following, "Why in the name of common sense were we not taught these simple things in the medical school."

In the application of the remedy one has to be careful not to get the vaseline on the corn, callous or wart because even a thin film of vaseline will prevent the remedy from coming in contact with the lesion. The acid should be applied with the glass rod so as not to get it on the fingers of the one applying the remedy. It is not as corrosive to normal skin as it is to corns or callouses because the latter contain more keratin.

In answer to the question of how many treatments are required, I would say from one to four. I have never had to treat any case more than four times.

I want to repeat what I said a moment ago. The profession as a whole is to blame for most of its troubles. A certain per cent of patients insist on being fooled. They are the type who buy every worthless stock and go from one quack to another as long as they live. They can not be saved. However, if the profession in general will devote more time in treating the simple ailments effectively much of this quackery can be eliminated.

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## THE COST OF MEDICAL EDUCATION: ITS RELATION TO THE COST OF MEDICAL CARE\*

I. H. NEECE, M. D.

DECATUR, ILL.

Search for and interpretation of facts concerning the vital processes have been the prime objectives of the medical profession since the time that medicine emerged from a maze of folk ways, incantations, and superstitions. They have so

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\*Study of the Cost of Medical Education by the Committee on Medical Economics of the Illinois State Medical Society.



over-shadowed all else with which the medical man's life is concerned that there has been little study or thought given to other aspects of medicine.

It remained for the present day, when pressure was brought both from within the profession and without, for medical teachers and investigators to discover the relation between the cost of a medical education, the cost of medical care, and the income of the physician.

The time required in the study of medicine has been increased again and again in the last half century. The cost of a medical education has been increased accordingly, both to the student and to the source that makes up the deficit between what he pays in fees and what it actually costs to instruct him. If the school be a state or city university the size of this deficit is a matter of direct public concern since it is made up through taxes. If it be a privately maintained institution, the concern is of the school and medical profession, both of which should conserve its resources.

I do not propose to recommend a lowering of the standards of minimum requirements in order to reduce the time and cost of a medical education. I merely wish to lay before you the facts that are available. They are limited in their scope, as I said before, because the cost of preparing for a medical career has come only recently under the eye of the profession as a whole.

First, let us see what it costs to become a physician under present conditions and according to modern standards. Perhaps a comparison to the cost of an education in the past would make it more clear.

Angus McLean, M. D., Detroit, presented an interesting comparison of the years 1874 and 1931 before the Wayne County Medical Society recently. In 1874 if a man had attended high school or could pass a not too rigid examination, he might enter medical school in the University of Michigan. In 1931 he must have graduated from high school and have had at least two years' preparatory work in a university before he may enter the medical school.

Fees in 1874 for the student amounted to \$20.00 for the first term and \$10.00 a term thereafter. In 1931 fees together with laboratory charges in that school amounted to \$250.00.

Clinical material in 1874 was composed of patients who paid their own transportation and

often their hospital bill. In 1931 Wayne County alone paid \$221,556.80 for transportation, hospital expense and other costs connected with obtaining clinical material. This cost, amounting to \$4,000.00 for each graduating senior, was met of course by the taxpayers.

A total of 12 months' time was invested by the student in 1874 in study in school and with his preceptor. A total of 66 months is the minimum required of the present day medical student. The length of the course in 1931 is more than five times that of 1874 and the cost of graduation per student is consequently greater for both himself and the state.

The cost of medical instruction last year averaged about \$704.00 a year for each student enrolled. Of this cost the student paid an average of about \$254.00. Neither of these figures include the cost of microscopes, laboratory fees, materials and individual costs to students.

Whence came the money to pay for the difference between what the student paid and what the education cost the school? The incomes of 63 medical schools reported in the Journal of the American Medical Association on August 20, 1927, shows the costs of operation made up as follows:

Student fees .....	\$ 4,057,304.00
Endowment income .....	2,784,527.00
State or city tax.....	2,574,973.00
Other sources .....	2,567,059.00
Total .....	\$11,983,973.00

Thus we see that the student pays about one-third of the cost of his education. This of course is considerably lower in some universities, especially those maintained by the state, and considerably higher in some of the higher priced institutions.

Certainly, many will say, a student should be willing to pay a third of what his education actually costs. The student, as a rule, is willing to pay. But the share which he must pay, along with the total cost of medical education has been bounding upward with no sign of losing its momentum.

In 1910, with 129 medical schools in the United States, the average fee was \$125.00. Five years later the average had increased to \$141.00. In 1920 it had leaped to \$222.00; and in 1930 the 86 schools of medicine in the country averaged \$302 for fees.

There are several very real objections to this tendency. The cost of medical education seems

bound for such heights that only the sons of the well-to-do may enter the profession. Along with the increased cost of the courses and the lengthened time of attendance, the studies themselves have become so complicated and so crowded upon one another that working one's way through medical school to make up for deficient fund is impractical if not impossible.

Medical educators on every hand advise boys against planning to work. Walter L. Niles, dean of Cornell University Medical school in New York, advises against the student working in medical school.

"I think it is generally best for the poor boy to avoid the necessity of very much outside work during the college year," he says in discussing his views, "and I think it always is a mistake for him to interrupt his course once started."

"It seems better to me for him to work for a year or two before commencing the course, or, when possible to borrow funds which he will subsequently repay. There is, however, a serious objection to mortgaging his future so that he feels compelled to begin remunerative work immediately upon completing his hospital internship. It means that then, instead of earlier in his development, he must interrupt his scientific career for the necessity of making money.

"How often do men well qualified up to that point, reply, when we urge them to continue in scientific medicine, that they must begin to make some money. It is very discouraging to the teachers and their efforts have, to a certain extent, been wasted," Dean Niles concludes.

We have seen now, what the medical education costs the student in time and finances; what the public or private endowment funds must pay; what the profession itself loses when capable men abandon scientific medicine to seek financial gains because of pressing debts of their college education can only be conjectured.

But the complete picture of this high cost of medical education has not yet been seen. There is much said about the high cost of medical care by the lay public. Medical sources have answered that a physician must obtain a fee that will justify the expense and time invested in his education.

In the last three years we have become keenly conscious of these economic and social problems. They have been discussed from every angle and the physician, with his so-called exorbitant fees,

has not been spared. These arguments are aimed at the average physician, so we may take the average physician to reply.

Gordon Heyd, M. D., in his presidential address at the Medical Society of the County of New York, gives a vivid picture of the facts of the case.

"The doctor of today is about 28 years old before he begins to practise. What has it cost in actual dollars and cents to produce this educated and trained product? His pre-medical and medical education, with fees, maintenance and miscellaneous expenses, will cost \$16,000.00. His loss of earning capacity while being professionally educated might be roughly estimated, for six years, at \$12,000.00.

"This young man begins practise at 28 years of age with an invested indebtedness of \$28,000.00. Upon this he should pay \$1,400.00 a year interest. I seriously doubt, although I have no figures to verify it, whether 80 per cent of the doctors ever overcome this primary indebtedness.

"In other words, more than four-fifths of our profession never pay their capital investment by leaving an estate equal to \$28,000.00. I think they never make up the carrying charges by saving annually \$1,400.00 a year.

"In order just to break even with the board, a physician must have saved \$1,400.00 a year after graduation, and have created, in addition, an estate valued at \$28,000.00 before he dies."

Criticism that the average medical student in the United States is nearing 30 years of age before he is ready to practise may be modified to some extent by the quarter system which has been introduced in seven medical schools. The system provides for school throughout the entire year and enables the student to graduate in considerably less than four years.

It also gives continuous use for educational purpose of a building and equipment, especially of the hospital, which must operate continuously throughout the year in any case. Perhaps this also may have some slight effect in reducing the total cost of medical education by reducing the overhead expense.

Opportunity for distribution throughout the year of teaching service of professors and for the prosecution of their research work at a season and place most suitable for it also is afforded under the quarter system.



But the financial cost of medical education cannot be reduced as easily as the time element has been met through a full school year. There is no disposition on the part of the profession to reduce standards. As long as high standards are to be maintained and medical science expanded, and the new developments added to instruction, there is little hope of reducing the total cost of the education.

It is, of course, possible to further reduce the amount that the student himself must pay. But when that source of income is reduced the medical school must meet the loss with an increase on some other hand. There is little help to be expected, in these times of tax reduction demands and programs, from the public funds. Endowment funds might prove a solution in the distant future, but endowments are built slowly and usually are given closely bound up with provisions by the donor. The other sources of revenue are so miscellaneous that they fall under no general rule and can offer no widespread solution.

There remains only the revenue obtained from patients to make up, to the individual physician, the cost of his medical education. Far from increasing these fees, the demands for reduction in the cost of medical care is a barrier in that direction.

### MANIPULATION OF THE STIFF SHOULDER\*

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The selection of the case suitable for manipulative treatment is a matter of judgment based on experience and precept. The application of this method of treatment is, however, an art. The criteria of artistic expression are often or generally decided by the teaching of some master artist by whose personality and virtuosity the trend of opinion is crystallized and whose teachings are followed blindly by assistants and disciples until some formidable new school of practice arises. This is equally true in the realm of the fine arts and the surgical arts. We can thank the osteopaths for forcibly and painfully directing our attention to the benefits of manipulation in certain joint conditions.

Had Hugh Thomas understood the sound physiological basis upon which the practice of manipulation now rests, he would not have uttered that pronouncement which, backed by the weight of his great prestige and authority, has retarded the development of physical treatment and, especially, scientific manipulation among the orthodox profession, even till the present time, and fostered the development of thriving schools of osteopathy and peripatetic "bone setters." The full quotation of his pronouncement is as follows:<sup>1</sup>

"For many years after the commencement of my experience in surgery, I had the opportunity of observing the practice of those who had acquired a good reputation for skill as successful manipulators. I have resorted to these performances, and for many years believed that my interference assisted recovery. Long ago I have, from a more complete knowledge, confirmed by crucial tests, so selected them that *I cannot find suitable cases upon which I would perform the deception known as passive motion*. And whereas in the early days I believed that much aid was given in recovery by passive motion, now I know by well-attested facts that some of the marvels of my past practice had been marred by the very treatment I was so proud of."

This view, from so celebrated an authority, formulated and unremittably reiterated for the 15 years following 1875, substantiated the enduring opinion inculcated in the mind of the British regular practitioner by John Hilton's notable volume,<sup>2</sup> "Rest and Pain," based on his principle of treatment by rest without massage or manipulation. He had, from 1853 to 1878, successfully and brilliantly preached a system of therapeutics in which exercise, active and passive, had no more place than massage or manipulation. The principles of Hilton and Thomas are still strongly operative in America in influencing the old style regular practitioner against manipulative measures.

Then, too, the unfortunate results following the application of "brisement forcé," or the powerful manipulation and wrenching of a stiffened joint under anesthesia, has engendered in many surgeons a lasting aversion to this treatment.

However, clinical experience is demonstrating

1. Thomas, Hugh: Principles of the Treatment of Fractures and Dislocations. Part VI of Contributions to Medicine and Surgery. P. 66. 1886.

2. Hilton, John: Rest and Pain. London. Bell and Daldy. 1863.

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that there is a narrowly limited group of indications based on the interpretation of definite symptom pictures of chronic shoulder conditions in which expert manipulation is advantageous.

It is our purpose to point out types of pathology which justify, and describe the technique by which, this treatment should be administered and which in our experience has yielded satisfactory results.

*Cases in Which to Avoid Manipulation.* The determination of the stage of contracture of the soft tissues about the shoulder joint is more important in arriving at a decision on the indication for manipulation than the accurate diagnosis as to the exact location of the pathology with five notable exceptions. Manipulation is definitely contraindicated in:

1. Tuberculosis of the shoulder joint.
2. Syphilitic and parasyphilitic articular or peri-articular lesions.

3. A tendency to myositis ossificans.
4. Gonorrheal affections.
5. Cervical neuritis and radiculitis.

The diagnosis as to the stage of contracture depends upon the varying aspects of the four symptoms, (a) limitation of motion; (b) pain; (c) weakness; (d) tenderness.

The presenting symptom of all stiffened shoulders is of course limitation of movement. The position which the arm tends to assume after traumatism or inflammatory irritation of the shoulder joint is one of adduction, slight flexion or "protraction" and internal rotation. This position relieves the normal pressure between the great tuberosity with its attached supraspinatus tendon and the acromial process. The position of muscle balance between adduction and internal rotation on the one hand and abduction with external rotation on the other is not established in man because in the first place the internal-rotator-adductor group of pectoralis major, teres major, subscapularis and latissimus dorsi are much more powerfully developed than the shorter and smaller external-rotator-abductor group of deltoid, supraspinatus, infraspinatus and teres minor. The "purchase" of the abductors and external rotators (i. e. the distance from the fulcrum of joint motion to the muscle insertion, the weight arm, more nearly approaches the power arm (to muscle origin) than is the case in the abductor and internal rotator group,

which in general arise at some distance away on the chest wall rather than on the scapula.

In the second place the weight of the arm has no counter-balancing "plastic muscle tone" in this extremity of man. Since he has assumed the orthograde position "plastic tone" as shown in decerebrate rigidity is only displayed in a definitive pattern in the "antigravity" muscles of the lower extremities. In the early stages of shoulder stiffness the limitation of motion is largely due to muscle spasm. Later fibrosis of muscle and ligamentous contractions as well as intraarticular adhesions take its place. How are we to distinguish the limitation of motion, that is, muscle spasm, found in the active progressive joint disease in which manipulation is usually contraindicated, from limitation due to adhesions within or without the joint? The criteria are these. In the presence of active or progressive joint lesions a limitation of motion in all directions is expected. Furthermore, pain and spasm begin even with the first few degrees of active or passive movement. In distinction from this in the shoulder incapacitated by adhesions most of the joint motions are comparatively free, the limitation being particularized by the special pathology of the particular condition. This makes a diagnosis of the pathological change in capsule, bursa, ligament or muscle of at least some importance for purposes of treatment. The bony obstruction to movement infrequently found in osteoarthritis renders attempts at manipulation useless.

Pain when adhesions or inflamed muscle is stretched closely stimulates the pain on motion of a tonically spastic muscle. The patient learns to avoid these movements which give rise to such stretching and pain. Consequently the muscles which produce the painful movement lose their normal tone, atrophy and become fibrosed and shortened. Often the tonic spasm and fibrosis must be relieved by a course of baking and massage before the diagnosis of the underlying lesion can be made.

Nocturnal aching is a not infrequent symptom. During the waking hours the sets of muscles which prevent painful motion due to the approximation of inflamed surfaces are on guard. When complete muscular relaxation occurs during sleep, adhesions are dragged upon or a damaged supraspinatus tendon impinges upon the



acromion and the patient wakes with a painful start.

Tenderness is either located over the actual pathology or over the spastic protecting muscle or is referred to a muscle insertion. The latter occurs classically in supraspinatus tendon and subacromial bursa lesions at the insertion of the deltoid. In supraspinatus lesions local tenderness over this tendon which disappears as the tendon passes under the acromion on abducting the arm (Dawburn's sign) is a conspicuous finding.

Weakness and loss of power in the contracted atrophied muscles is often accompanied by a soft crepitus on palpating the affected muscle. The weakness of the external-rotator and abductor groups is not to be confused with the more diagnostic atrophy or for instance of the supra and sometimes also the infraspinatus tendons in supraspinatus pathology. Sudden loss of power in a muscle group or the affected limb during a delicately coordinated action (the "down it will go" symptom of Codman) are probably due to reflex muscle inhibition when a tender adhesion or joint surface is stimulated by motion.

X-ray examination of the examined shoulder must not be omitted since the diagnosis of early tuberculosis and bone malignancies which must not be manipulated often rests upon roentgenological evidence. However, Kind and Holmes,<sup>3</sup> who studied roentgenologically 350 painful and stiff shoulders excluding cases of fracture and dislocation, found that only 50 of these or 14.3 per cent. presented x-ray evidence of bone or joint pathology. They concluded that the differential diagnosis of arthritis, bursitis, tendon and periarticular lesions must frequently be based on clinical examination. Loose bodies in the joint or subacromial bursa visualized in the roentgenogram certainly cannot be expected to become symptomless after manipulation. A tendency to myositis ossificans extending along muscle and fascial planes contraindicates any forcible treatment.

*Specific Contraindications.* Tuberculosis disease of the shoulder is fortunately rare. Knagg<sup>4</sup> has compiled 602 cases of bone and joint tuber-

culosis in the Paddington Green Children's Hospital, London, and finds 0.8 per cent. involved the humerus and 1.5 per cent. any part of the shoulder apparatus. There is rarely any difficulty in excluding a stiff shoulder due to tuberculosis. Injury is a patent exciting cause of tuberculous disease but the history of gradually increasing disability following an injury, generally a trivial contusion or sprain, after some considerable interval is quite different from that of the continuous train of symptoms following a traumatic synovitis or arthritis. The slight general swelling about the joint, marked wasting of muscles even within a few days after disability is complained of, help to distinguish the tuberculous from the traumatic affection. Animal inoculation of aspirated joint fluid is generally unnecessary as the roentgenogram even at this early stage presents the typical characteristics of early tuberculosis of bone, that is, relatively slight necrosis as compared with the amount of local and surrounding rarefaction.

Syphilis of joints is uncommon, and may appear as a chondro-arthritis as described by Bowlby<sup>5</sup> in 1894. Virchow had already named this condition. Except by serum reactions, therapeutic tests and the presence of luetic lesions elsewhere, these conditions cannot be differentiated from osteoarthritis, although the differentiation for indication of treatment is essential. Roentgenological evidence is not conclusive. There is an irregular atrophy and erosion not localized to points of pressure; there is no eburnation of exposed bone and no tendency to lipping or osteophytic production. Contrary to the common opinion, the Charcot joint is often quite painful at first and this symptom follows a slight trauma. Great swelling appears. As this subsides the joint is more apt to be lax than stiff. Early x-rays may show a calcium deposit suggesting calcified subacromial bursitis. Hypertrophic and atrophied joint changes are visible and the diagnosis must be based on the establishment of a luetic etiology.

Gonorrheal synovitis presents a shoulder with general muscle spasm and pain at the very onset of all motion. Fibrosis of most of the periarticular structures and shoulder muscles occurs early and tends to be progressive often to a stage of

3. King, J. M. and Holmes, G. W.: Diagnosis and Treatment of 450 Painful Shoulders. J.A.M.A. 89:1956-1961. Dec. 3, 1927.

4. Knaggs, R. L.: Inflammatory Diseases of Bones. William Wood & Co. New York. 1926.

5. Bowlby, A. A.: Diseases of Many Joints Probably of Syphilitic Origin. Med.-Chir. Trans. London. 77:43-56. 1894.

complete ankylosis. Manipulation, passive motion and any but the gentlest massage hastens fibrosis. The treatment except for maintaining the shoulder in abduction and external rotation is directed toward the etiology.

Cervical neuritis and radiculitis with referred shoulder pains need no shoulder manipulation. The diagnosis is frequently difficult. Spasm of the neck muscles and subsequent atrophy is more constant and of greater degree than changes in the muscles of the shoulder joint proper.

Brachial neuritis, with or without roentgenological evidence of cervical arthritis, is more tender at the nerve exits from the cervical spine and tends to produce pain radiating along the upper border of the trapezius and definitely down the nerve trunks of the arm. The median or circumflex trunk may be tender to palpation in the lower third of the arm.

*Conditions Where Manipulation Is Indicated.* We are assuming that the case comes to the surgeon in a stage after the acuity of whatever etiology has subsided and restricted motion is a long established condition whether or not all or only particular movements are persistently painful. An attempt to diagnosis the residual pathology aids in determining the prospects of successful manipulation and the degree of caution with which this should be undertaken. For this purpose four groups of cases may be distinguished.

1. The frankly post traumatic.
2. "Periarticular" conditions where trauma plays a role of varying importance.
3. Post rheumatic conditions.
4. Osteoarthritis.

Post traumatic cases have, in the author's experience yielded the most brilliant results to manipulation of any class of shoulder pathology. If possible, movements must be instituted before the organization of the plastic exudate occurs. Falls, either directly on the shoulder or where the force is transmitted to the shoulder through the extended arm, may produce a variety of lesions without pathognomic signs of particular tendon injury or bursal reactions. Young patients soon regain the normal motion after shoulder injury, but persons over 40 are likely to show an important difference in reaction. When the arm is bound to the side in a Sayre or Velpeau dressing after dislocation or fracture

or even if carried in a sling after a minor muscle contusion cartilage injury or traumatic synovitis, fibrous replacement and cicatricial contraction in damaged muscle or joint capsule is the rule. There is no objection to, and every possible reason for, early manipulation of these as soon as palpable muscle spasm and tenderness have subsided. Thomas felt that a tightening of the entire joint capsule and obliteration of the well marked pouch of synovium which exists in the lowest part of the capsule when the arm is held at the side accounted in great measure for the early diffuse joint stiffness after trivial injuries. Colin Mackenzie,<sup>6</sup> A. G. Timbrell Fisher<sup>7</sup> and most other British orthopedic surgeons still agree with this.

*Strains of Muscle Attachments.* Pain in a particular muscle when it is passively stretched or actively contracted against resistance focuses attention on this injury. According to Jones<sup>8</sup> the "tender spot is the key to the situation. It is a small patch of effusion below the periosteum (at the muscle attachment) or in the fibers of the tendon which run in and through the periosteum. The pain is due to tension on this effusion caused by tension on the muscle." As the patient continues to hold the joint motionless and protective spasm of the particular and synergistic muscle groups continues, stiffness of the shoulder develops.

Sprain of ligaments follows a similar course; the region of the tenderness and pain on motion being diagnostic as to the ligament involved. As ligaments are notably stronger than the bones to which they are attached a fragment of periosteum may be pulled loose by traumatic traction on a ligament. The more extensive lacerations and ruptures of ligaments must be treated by immobilization at first. Some considerable fibrosis and attendant stiffness is inevitable. The only important decision involved is to determine the proper time for breaking these down. A forcible attempt to break these bands while the cicatrix is fresh and vascular and exquisitely tender to pressure leads to more effusion, hemorrhage, more patient has been fortunate enough to have been

6. Mackenzie, C.: *The Action of Muscles*. 2nd Edition. New York. Paul Hoeber, Inc. 1930.

7. Fischer, A. G. T.: *Chronic (Non-tuberculous) Arthritis*. New York. Macmillan Co. 1929.

8. Jones, R.: *Military Orthopedic Surgery*. Medical War Manual No. 4. Philadelphia. Lea & Febiger. P. 60. 1918.



treated with slight, gentle daily motion from the first day of the injury he presents himself weeks later with much less cicatricial pathology to deal with.

The typical traumatic arthritis is in reality the result of bruising or crushing of the articular cartilages of the humerus or the glenoid. Such an injury commonly results from falls on the outstretched arm. Typically a Colles' fracture has been sustained. The forearm is carried in a sling while the fracture is being treated. No attention is directed to the shoulder at first, as while the arm is immobilized the shoulder is not painful. Later when the splint is removed from the fracture and the patient attempts to use his arm pain is experienced on the first few degrees of motion of the shoulder in any direction. Spasm results if even slight motion is continued. In spite of physical therapy the shoulder grows worse. Cartilage is a non-vascular tissue. No true articular cartilage regeneration occurs. There is an area of active inflammation while fibrinous healing is taking place and intra-articular bands form. Manipulation followed by the abduction splint for immobilization and absolute rest yield excellent results.

The diagnosis of "scapulohumeral periarthrits of Duplay"<sup>9</sup> described as such by that author in 1872 may seem a step backward in terminology but defines nearly enough for our purpose a group of lesions often following trivial trauma and associated in varying degrees with an "arthritic tendency" where fibrosis results in the structures outside of the joint proper. When the arthritic moiety becomes quiescent these shoulders need manipulation to stretch the various contracted structures. Among these structures the commonest sites and types of pathology are in order of frequency, bursae, supra- and infraspinatus tendons and fibrous bicipital tenosynovitis. Only the commoner entities can be described here.

**Bursitis.** For purposes of treatment the subcutaneous bursae are of no importance in this discussion.

The deeper bursae are of far greater importance in function and are capable of producing periarticular contractions and stiff painful shoulders. They may be classified as: (a) Subfascial,

aiding the motion of fascial planes upon each other; (b) sub-muscular, which are between two muscles, between a muscle and some skeletal part, or between a muscle and a tendon; (c) sub-tendonous bursae, which are between tendon and bone, between tendon and ligament, or between two tendons; (d) periarticular bursae, like the bursae subscapularis which often connect with the contiguous joint. These deeper bursae are important as the location of much obscure pathology and mistaken diagnosis. The surgical approach is often difficult or exposes important structures so that operative removal is not always feasible without a destructive operation. Even after operation the stiffened shoulder still remains to be treated.

Being quite like the tendon sheaths and joint cavities in development and anatomy, the bursae mucosae present the same pathological reactions to trauma, infection and irritation as the former structures. In chronic bursitis, resulting from trivial trauma or repeated unusual motion, the question of a rheumatic element in the inflammation always enters the mind of the examiner.

Because of the complicated arrangement and contiguity of important structures, all chronic types of bursal pathology should be given the benefit of thorough and prolonged physical treatment before manipulative intervention is contemplated. For an intelligent approach to the treatment by physical means, the physician must visualize the probable pathology of the bursa and surrounding structures at different stages of inflammation. Deering has admirably classified these stages somewhat as follows:

1. Acute reactions with effusion or fibrin deposition beginning.
2. A chronic stage with fibrous adhesions forming and contracting with associated fascial fibrosis and sometimes periarticular fibrosis in the contiguous joint.
3. Muscular atrophy from spasm and disuse.
4. Calcium and fat deposition in the bursa or obliterative fibrosis. Sometimes the inflammation begins insidiously with no acuity, or stiffness of nearby joints, pain on motion being the first complaint. The early local treatment consists of heat, particularly diathermy, absolute rest of the part in a position relaxing pressure upon the affected bursa. Gentle massage up to the pain threshold maintains muscle nutrition

<sup>9</sup>. Duplay, S.: *Traite' de Chirurgie*. G. Masson. Paris. 1890.

and relaxes spasm. This, if unrelieved, would result in muscle atrophy and fibrosis. In the second stage, fibrous adhesions in the bursa and nearby tendon sheaths or between muscles must be prevented, even at the expense of some pain to the patient, by means of gentle manipulations and active stretching exercises to maintain joint, tendon and muscle movement. Heat is continued.

Often the case is seen first during the third stage, when the acuity has subsided but much associated pathology of muscle atrophy and fibrosis is already established. Besides the physical treatment already mentioned, forcible manipulation under gas is necessary, in graded operations. Assisted exercises follow the institution of voluntary muscle action.

In the last stage, when calcium salt or amorphous fat can be found in or beneath bursa, diathermy has an almost specific action in hastening its resorption. Manipulation should be advised only after resorption has been accomplished so far as possible by conservative means.

The chronic cases presenting no positive roentgenological findings are often mistaken for traumatic periostitis, neuritis, articular synovitis, a primary affection of nearby tendons or their sheaths or myositis. A definite diagnosis is imperative to make a decision between operative and physical treatment.

*Bursae About the Shoulders.* All types of inflammation in the various bursae about the shoulder joint are characterized by pain on motion of the joint, limitation of motion, and a tendency to hold the arm adducted against the side. It is difficult to make an accurate diagnosis of the bursae affected, the pathology and the etiological factors involved in this symptom picture. The subdeltoid or subacromial bursa is the most frequent of the structures outside the joint cavity proper to present lesions of traumatic or inflammatory etiology. A fall on the outstretched arm brings the greater tuberosity smartly against the acromion process. Continual exertion with the arm hyperextended irritates structures covering these bony processes in a less violent manner. If the patient has a tendency to synovial irritation from some chronic toxemia or allergic reaction affecting joint and synovial surfaces, less friction

is necessary to produce serous or plastic reactions of bursal surfaces.

Codman<sup>10</sup> investigated the pathology of subdeltoid bursa reactions 23 years ago and described this bursa as follows:

"Its base is formed by the tuberosity of the humerus and the tendons of its rotators, which are inserted into the tuberosity. Its roof is formed by the periosteum beneath the clavicle, the coracoacromial ligament and the acromion and by the upper part of the fibers of the deltoid muscle. Its limits beneath the deltoid muscle vary considerably, but the outline is liable to be trilobar, like a clover leaf, and to extend below the edge of the point. On the whole, it is circular in outline, concavoconvex in shape and about the size of the palm of the hand."

The sensory nerves arising from the shoulder joint and from this large subdeltoid bursa, which may be spoken of as an accessory shoulder joint, go to the same cord level which supplies motor impulses to the muscles in close proximity to the shoulder joint and sensory irritation is reflected to these muscles as protective spasm, fixing the shoulder in adduction and slight internal rotation. On physical examination, the greatest tenderness is found either over the middle of the deltoid or over its insertion or distributed in both of these points. Pain on abduction may begin with the first few degrees of motion and be localized on the outer aspect of the arm at the deltoid insertion or suddenly appear at about right angle abduction, localized just below the acromion. No pain or tenderness should be expected in the uncomplicated subdeltoid lesion over the anterior border of the deltoid or about the bicipital groove of the humerus. In examining shoulder motion, it is an important item of technique for the examiner to seize the scapula firmly and prevent its rotating motion to replace the shoulder joint motion in the stiffened or painful shoulder. Codman's test of having the patient flex the spine forward, letting the arms hang down, then arise bringing the arms up to the horizontal with the body, is important. When this maneuver is performed a sharp pain is generally experienced in the shoulder when the erect position is resumed and the humeral head is brought up against the acromion. Codman has lately decided that chronic post traumatic bursitis is not a primary affection

10. Codman, E. A.: *Obscure Lesions of the Shoulder; Rupture of the Supra-spinatus Tendon.* Boston Med. & Surg. Jour. CXCVI, 381. Mar. 10, 1927.



but secondary to partial or complete rupture of the supraspinatus tendon or degenerative changes, notably calcification in this tendon often combined with similar changes in the infraspinatus tendon.

In 1906 Dawbarn<sup>11</sup> described a sign rather characteristic of proliferative changes or calcium deposition in the supraspinatus tendon in studying subdeltoid bursitis, but Stevens, in 1909, first recognized a distinction between this and subdeltoid bursitis proper. The sign mentioned consists of a point of tenderness just above the tuberosity of the humerus, which disappears under the acromion on extreme abduction of the arm. This is rather constant in calcification of the supraspinatus tendon. In lesions of this tendon, internal rotation and abduction is more painful than external rotation and abduction which latter is more painful in the subdeltoid affection. An x-ray taken with the arm rotated outward, the tube directed from a position close to the base of the neck and directed downward and posteriorly may show the supraspinatus pathology, while an ordinary antero-posterior flat plate visualizes the subdeltoid bursa clearly. The distinction is subdeltoid and supraspinatus pathology from the standpoint of treatment is an important one, since chronic inflammation in the former yields much more readily and uniformly to diathermy and the abduction splint than the latter, which gives a much more hopeful prognosis of function return after early operation for removal of the pathology in the tendon followed by manipulation. Harbin finds the area of degeneration and calcium deposition often entirely limited to the tendon at operation without any associated changes in the subdeltoid bursa. The tissues within and beneath the deltoid muscle share with those about the elbow joint in a characteristic tendency toward calcium deposition after injury or irritation. Schujemoff<sup>12</sup> found that calcium may be deposited in the deltoid muscle fibers within 36 hours after suture of a laceration of this muscle. Calcium deposition often proceeds rapidly with a tendency to fibrosis, making any shoulder injury

particularly likely to result in early stiffness and limitation of motion.

Tenosynovitis of the long head of the biceps presents a tenderness far anterior, under the deltoid and along the bicipital groove. External rotation and extension of the shoulder are painful as is bicipital action. Local crepitus may be present. Manipulation cannot be performed without danger of a recurrence of tenosynovitis until several months after the bicipital groove tenderness and crepitus and topical pain on bicipital function have disappeared.

Coracoacromial, subscapular and infraspinatus bursitis are rare and the tenderness is localized and not adjacent to the subdeltoid tender points. The former may be located under the coracoid process in front, or farther anterior, beneath the conjoined tendon of the coracobrachialis muscle and the short head of the biceps. The subscapular bursa lies between this muscle and the joint capsule with which it typically communicates and inflammation rarely involves this or is diagnosed separately from disease of the joint proper.

Periostitis of the humerus at the deltoid insertion may be traumatic from forcible deltoid action or associated with myofascitis here. Abduction is painful, but no other signs suggesting subdeltoid bursitis are present. X-ray may show a local roughening or exostosis of the cortex. These yield slowly to diathermy, but shoulder joint motions can easily be preserved.

*Conditions Following "Rheumatism."* The profession must at the present approach the consideration of all "rheumatic" conditions with "an humble and a contrite heart." Our conception of chronic "arthritis" and "rheumatism" is for the purpose of the present consideration that of Garrod<sup>13</sup> (1890) who recognized two types. The first he christened "rheumatoid arthritis," while to the second he gave the name "osteoarthritis." Various other classifications need not confuse us here. By the first we choose to mean tendency to partial fibrous ankylosis which appears insidiously or follows often the most trivial mechanical trauma. Often there is a history of chronic or recurrent muscle or fascial involvements (Albee's myofascitis)<sup>14</sup> or prior attacks of

11. Dawbarn, R. H. M.: Subdeltoid Bursitis. A Pathognomonic Sign for Its Recognition. Boston Med. & Surg. Jour. 154:691. 1906.

12. Schujemoff. Quoted by Moschovitz. Histopathology of Calcification of Supra-spinatus Tendon Associated with Subacromial Bursitis. Am. J. M. Sc. 150:115, 1915.

13. Garrod, A. E.: A Treatise on Rheumatism and Rheumatoid Arthritis. Philadelphia. Blackiston Sons & Co. 1890.

14. Albee, F. N.: Myofascitis. Pathological Explanation of Many Dissimilar Conditions. Am. J. Surg. 3:523-533. Dec., 1927.

rheumatic fever. Seldom the history points to no incriminating polyarthritis and the patient has through his entire history a mono-articular lesion. The etiological theories of focal infections and autointoxication of the intestinal organ are of course quite well known.

Pain on active or passive motion in every direction and decided and general shoulder muscle spasm on attempts at motion are both conspicuous and constant symptoms. The third important finding is muscle wasting not particularized to a muscle group and of greater degree than in any other type of shoulder pathology with which we deal. "Nerve lesions," of course, produce an extreme wasting but limited to the involved innervation. These symptoms and the history make the diagnosis. Roentgenological findings seldom give positive assistance. As Pemberton<sup>15</sup> states, "It is clear that arthritis and its accompanying phenomena may exist for many months without resulting in evidence x-ray can detect." His roentgenological studies were based on 400 cases.

In cases of residual stiffness after the arthritis has "burned itself out" we are squarely confronted with the question, "Shall I immobilize" or shall I permit motion in this joint? Only experience with such cases and experimentation with the particular joint can tell us which one to manipulate after the manipulation is tentative. If a marked reaction follows immobilization, heat and massage must be instituted for several weeks and another manipulation attempted later. Certainly little harm is done by this tentative approach.

*Osteo Arthritis.* Entirely satisfactory results are uncommon in this class of affections. The diagnosis is not usually difficult. Symptoms appear insidiously, often following over use. Trauma has little or no effect in the evolution of the disease. A dull ache is first experienced on motion and slight tenderness exists along the joint line. Ordinarily the muscles are not wasted in proportion to the joint pathology. The stiffness may be restricted only in the last few degrees of motion, one motion not being more affected than another. It is a general rule that osteoarthritic changes are less marked in the joints of the upper extremities than in those of

the lower. The hypertrophic type of reaction may be almost entirely absent due to the fact that hypertrophy is a compensatory reaction and as one expects is greater in the joints of the lower extremities which have to bear the weight of the body. In the roentgenogram, lipping of the joint edges is rare and when it does occur it is not extensive. This is fortunate for purposes of manipulation as it is unusual to find enough bony changes around the joints to be the cause mechanically of the loss of joint motion. Areas of rarefaction vaguely suggesting cavities may be seen in the head of the humerus or the head may assume an ovoidal shape. Sometimes earliest x-ray finding is blurring of the acromioclavicular joint.

Those who have faith in the infectious origin of these conditions may treat various foci infection or absorption of toxins but physical therapy often yields a more satisfactory result. However, manipulation can be tried and can be repeated with greater force if any improvement is attained. Gentle manipulation sometimes yields surprisingly good results in a patient of advanced years who has developed a tendency to fibrous replacement of the skeletal muscles in association with only a low-grade change in the particular shoulder joint.

#### TECHNIQUE OF GRADED MANIPULATION

By manipulation of the shoulder joint followed by maintenance of the joint in a position of rest and muscle balance, the following physiological results are obtained:

Relief of muscular spasm by the new position.

Increased circulation in periarticular structures.

Increased absorption of exudates for bursae and the joint by—

Breaking up intra-articular and intra-bursal bands and pockets.

Preliminary preparation or treatment can be divided into remote and immediate. By the first is meant a thorough course of baking and massage to promote circulation and relieve edema and fibrosis as much as is possible by this conservative treatment. This procedure leaves the examiner able to ascertain exactly which movements are persistently painful and restricted. He should make written notes of the exact degree of passive and active abduction, internal and

15. Pemberton, R.: Studies on Arthritis in the Army Based on 400 Cases. Arch. Int. Med. 25:231-281, April, 1920.



external rotation possible at this time to check with his findings as to movement when the patient is anaesthetized for manipulation. This conservative treatment should be continued until no further progression in improvement occurs.

Immediate preparation consists of the application of hot, moist dressings with the shoulder in the greatest possible abduction the patient can endure for four to six hours.

At the first manipulation under gas (preferably ethylene) only one motion can be attempted. When the operator, who has slowly attained a slight improvement of motion by weeks of baking and massage, finds he can accomplish all movements by force, after the patient is anesthetized, he sometimes feels an almost irresistible impulse to pump the arm up and down and rotate it forcibly in all directions until passive motion is complete. This is often possible but has calamitous results. A more complete spasm ensues, ruptured fibrinous adhesions are replaced by fibrous bands and the loss of function is greater than before the treatment. Kneading of the structures which feel tense should accompany the manipulations. When spasm in a muscle still persists, if the part is held immobile and "on the stretch" for two or three minutes, the spasm will quite surprisingly relax and further motion can be accomplished.

The one motion attempted at the first maneuver should be abduction and this by a "coaxing" motion and only until one notable tearing of shortened structures is felt or heard. This snap which the osteopathy calls "reduction of a subluxation" may be due to stretching of a folded joint plica, release of a fibrous shortened tendon or ligament or tearing of an intra-articular or bursal band. Stop here and apply hot dressings with the hand tied to the head of the bed, securing maintenance of the maximum abduction obtained.

A commonly overlooked principle underlying the efficacy of this treatment lies in the fact that a joint is endowed with remarkable powers of repair and that these powers are often proportional to the motion permitted in the joint; that they depend on function rather than on rest of the part. A striking characteristic of various types of chronic arthritis, traumatic or otherwise, is the observation that stiffness is aggravated by rest and becomes less marked after exercise, a use of the affected extremity provided

such exercise is not excessive. On awakening in the morning the stiffness is greater than it is later in the day after even minimal use. If manipulation has been properly performed one rarely finds the patient complaining of spontaneous pain on the morning following the maneuver. Nevertheless, hot fomentations are again applied.

In two or three days if abduction is not now complete, finish it under anesthesia. During each manipulation the scapula must be grasped firmly with the left hand to prevent scapulothoracic movement which might deceive the operator expecting to establish scapulo-humeral abduction. After another waiting period, secure complete external rotation in one or two stages. As the last step, complete internal rotation once forcibly but put up the arm thereafter in the airplane splint and allow the patient to leave the hospital wearing this with the arm in abduction of 90 degrees or a little more and complete external rotation.

Physical treatment must follow this manipulative series for several weeks, at each seance the splint being removed and adductions and rotations being performed after baking and massage. In the author's experience, the motions of extension (or retraction) and flexion (or protraction) will be secured without special manipulation or after treatment if complete rotation and abduction are re-established.

One occasionally hears members of the medical profession intimate, during a discussion of the value of manipulation, that there is something yet to learn, some secret principles of manipulation handed down outside the ranks of regular practitioners which they cannot acquire. As a matter of fact, the principles of manipulative interference are very simple. As Sir Robert Jones has succinctly put this in his Cavendish Lecture, "Let me emphasize the statement that there is nothing which the manipulator (osteopath) does which cannot be more safely undertaken by any practitioner (of medicine) who possesses a knowledge of the pathology and elementary anatomy of the joint, but he must become familiar with the methods of manipulation which are safe and thorough—let it be fully realized that there are no hidden or mystic rites in any "bone setting."

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## NEW PHASES IN PEDIATRIC MEDICINE\*

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Twenty years ago, whenever a group of pediatricians met, the discussion centered around the question of the latest advice that was to be given in infant feeding. With age and experience has come toleration and wisdom. No longer do we discuss whether this man is right or that man is wrong, because we have come to recognize that there are many different ways of feeding infants and all of them correct. In other words, the normal child will take a great variety of food and thrive on it.

Certain principles are necessary. The properly trained physician finds it a comparatively simple thing to bring up a baby from the nutritional standpoint alone. Simple formulae are quite sufficient to meet the needs of at least 95 per cent. of the children. It is only at the most 1 per cent. who need expert advice. I do not mean by this that the physician is not a necessary agent in prescribing the dietary for an infant, but I do mean that it is not a difficult task for a physician, who is in any way equipped, to undertake this responsibility.

Of course, when we speak of the nutritional side of an infant, we must realize that there is an emotional side also. Someone has said that our American teaching of infant feeding has led only to loss of appetite, and to a certain extent such statements are justified. It is the insistence on the part of the laity, and oftentimes of the nurse, that the child must measure up to a certain set standard of height, weight and age that has brought about a certain psychical reaction, the result of which is seen in the child's refusal to accept the food put before him. The vicious circle is then established. If the mother had been taught that the child should have only a moderate supply of food, as a baby should, probably we could overcome much of the difficulty in feeding it.

I have come before you today, however, not to dwell upon these age long difficulties of pediatric practice, but rather to set before you some

of the things which are agitating the pediatric world at the present time. There is no branch of medicine that is turning out better scientific work nor perhaps more of it in the United States than is being turned out by the pediatricians at present. However, the social side of pediatrics is to the fore. The recent White House Conference has brought with it many problems, problems which cannot be settled by you and me. Many of them need much longer and deeper study than has already been given before they can be worked out. Nearly all of them require co-operation of many different groups if they are to be worked out properly. May I take your time to discuss with you some of these problems that are being presented to the pediatricians today?

*Medical Education Not Meeting Responsibility.*—We must first know about ourselves if we are to be of any value in helping others. Therefore, a rather thorough survey of the physicians themselves and of their education was made. It became very evident from these statistics, as many of us had previously suspected, that the medical school in this country is not fulfilling its duty to the public in respect to the education of doctors who practice among children. Whatever may be the cause for this, the fact is still very evident. Medical schools in the past have had no appreciation of preventive medicine when it demands individual attention. This is one phase of pediatrics which is most neglected in our medical teaching. As you doubtless know, there is no branch of medicine which comes in contact with the public health work as does pediatrics. Consequently, it is of the greatest importance that our medical schools realize this and remedy the defects. The difficulties are only too apparent. In the first place, the medical curriculum is already overcrowded. Whether that could be changed to advantage or not is not for me to say. Nor is it for me to say that one branch of medicine is more important than another. But the medical schools must find a way out or else not only on the medical schools, but the medical profession as well will fall the censure of the community.

The great hue and cry among health workers is that the average physician does not care about practice with children. This is especially true

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with infants. That a certain amount of criticism is justified, no one can deny, and one would question whether this criticism were exaggerated if one reads Dr. Veeder's report on the schools of this country. Unless we can remedy this primary defect, we must propose to have much of the medical work among children taken over by public agencies and frequently superintended by laymen. To my way of thinking, this would be a very serious fault. Only one who has gone through the long years of preparation for medicine realizes how such preparation is necessary to have the proper outlook upon any medical situation. If we cannot employ our physicians in preventive pediatrics to the full extent, then in just so much are we going to deprive our children of the advantages of the greatest of health boons. This is a more serious situation than at first appears, because the psychology of the average physician centers about disease and not about health, and the only large groups of physicians who are interested in health are the public health workers and the pediatricians. I tell you this because I wish you would realize the difficulties with which we have to deal.

*Hospitals Short on Pediatric Facilities.*—When we view the hospitals of this country, we find that they have probably sufficient beds and bassinets for children. It is the exceptional general hospital, however, that has a well rounded out pediatric service. Most of the hospitals, even though they have staff appointments in other lines, have no pediatrician on the staff. This is serious for many reasons. In the first place, the children who go to these hospitals have not the intelligent supervision which is necessary to protect them from conditions in hospitals peculiarly disturbing to the young patient. Problems of the child in the hospital are decidedly different from problems of the adult. The situation is also peculiarly serious because of the fact that in many communities the hospital is the rallying place for physicians; where they get together and discuss their interests, medical and social. If there be no one to present the pediatric viewpoint, no one to take the part of the child in that hospital, then we are far from a consideration of the care of the child in that community by the medical profession.

It is not surprising that the average hospital does not have a large children's service because a children's service never pays, and after all, hospitals must be supported. Nearly eighty per cent. of the children who go to the big general hospital are free or part-pay patients.

Serious as this situation is with respect to the doctor, with respect to the training of nurses it is far more so. It may be said of the doctor that he has already had his training and that while it is inadequate, at the same time he has at least a knowledge of the subject.

But what of the nurse who is trained in the hospital without a properly conducted children's ward? Some of them, you say, will go to a children's hospital for that service. I grant you that. But most of them will have no such opportunity, and the nursing care of children is as distinctive an art as is their medical care.

*Public Is Lethargic Toward Prevention.*—When we pass from these measures which affect the profession largely, and which indirectly contribute to our deficiencies with respect to the laymen, we come to a situation which is quite a serious one. Do people in the United States realize that there are fifty thousand cases of smallpox in this country every year? While at the present time the death rate is low, there is no telling how or when we may have an epidemic which would be fatal to large numbers in the nation. The United States is second to India in the number of smallpox cases occurring within its borders. Why? The answers to this would probably be many. A survey made by Dr. Palmer and reported to the White House Conference showed that only about five per cent. of our rural and thirteen per cent. of our urban population under school age had been vaccinated. The situation regarding diphtheria is not very much better. Whose fault is it? Certainly our public health authorities have done everything they could to have this corrected. The medical profession is fully alive to the situation. The fact that these two groups have not gotten together to carry on these necessary protective measures accounts to a large extent for the failure to have this accomplished. Where there has been intimate cooperation between the medical profession and the health authorities, much has been done. Where this cooperation has been lacking, little has been ac-

complished. The sooner both sides can see this, the quicker will the situation be remedied. Neither side is without blame. Neither side but has its proper arguments. Attempts have been made to remedy this condition with some success. This is not a matter of knowledge. It is a matter of administration.

*Health Teaching in the Public Schools.*—We turn now to the public and private schools. We find here another situation which needs intensive study. How much should the state do in the examination and care of school children, and how much should be left to the private physician? To show you how little the average layman knows about medicine, and how little he estimates what the physician's work requires, I would like to relate to you a recent experience. It occurred in Seattle, Washington. I was about to bid good-bye to a physician there who is a leader in the pediatric profession. He came out of his office very much disturbed. He said to me:

"Do you know what these people are proposing? The Tuberculosis Society has sent its nurse here to request that the pediatricians of Seattle examine all high school children to determine whether or not they have tuberculosis."

Now to these good people who constitute the Tuberculosis Society, this seemed perfectly rational. They did not realize for some reason or other that doctors have to work for a living. That is an omission on the part of many laymen. But that was really not the serious part of the situation. The serious thing was that they did not realize how extensive an examination must be in order to fit the situation. It is a comparatively simple thing to take a sick individual and find out what is wrong with him, but it is quite another thing to take a well individual and assure him that he is perfectly healthy. Suppose a mistake had been made either way. Suppose some child had been told he had tuberculosis when he had not. That would have hung over him for the rest of his life. Or suppose some child who was affected with tuberculosis was assured he had no tuberculosis. That too was serious because he would have taken chances. Think of the responsibility placed on the shoulders of the physician. This may be an extreme case, but at least it shows the gravity of the situation.

There is another phase of public health as it

affects school children, however, which is perhaps even more important, and that is the public health or hygiene that is being taught them in schools. How many teachers of hygiene in our schools, public or private, have had adequate training to teach this? What are they teaching? I am not myself familiar with this situation, but I have talked to some people who are, and they are all persuaded that there is a tremendous amount of trash poured into the minds of these young individuals under the guise of hygiene.

We have never gotten away from the stage of my boyhood when cancer of the stomach was displayed in beautiful colors as alcoholic gastritis. Such errors are not made now, but some almost as glaring are. It will take years of study and the most intimate cooperation between the medical men and educators to remedy this situation.

*Medical Education Is Basic.*—We see therefore that the pediatric branch of the medical profession has its hands full in the consideration of many difficult problems of a social nature. Some of these may be met in one way, some in another. The basic problem, so far as we are concerned, is medical education. Unless we can persuade the medical schools of this country to give proper education in preventive pediatrics, our problem is immeasurably delayed in its solution. None of these difficulties, however, are insurmountable. It is the part of wisdom to go slowly in order that we may build a firm foundation for future effort. Public health officials and the medical profession must get together on a common ground. The position of the private physician in charity work must be definitely defined. The public should be informed as to the amount of work done for the state by the private physician. This work if translated into dollars and cents represents far more than the combined charitable efforts of all the rest of the population. Nor must they forget that in taking away remunerative returns from the medical profession that they are digging the grave of that profession. They cannot replace this with heavily endowed institutions, nor with well equipped hospitals. There must always be a large group of the medical profession who are free to estimate the value of new discoveries and to formulate their application. There is grave danger of this



situation developing and for the good of those very persons who would develop it, we must combat it.

We must not hasten into the formulation of a course in hygiene for school children, but we must consider this from all sides. We must consult with those who are interested in education and we must evolve from this cooperation a means of education of the child which will interest him and at the same time be correct in the data which it provides. We must make the hospitals see that it is to their advantage to have pediatricians on the staff and that it is necessary to have a proper training for nurses in this branch of medicine. We must point continuously to the dangers of smallpox and diphtheria and urge the early immunization for these diseases. Much can be accomplished if we work together, very little if we work separately.

Nearly every problem along this line has its medical aspect. The pediatricians of this state and other states are more than willing to give of their time and advice so that these problems may be properly answered. Above all, we must not go too rapidly, for half truths are untruths. We must be sure of our ground before we proceed; in other words, the pediatric profession is ready and willing to proceed along sane lines for the betterment of children, whether it be their minds or their bodies, but this procedure must be sure and it must mean a cooperation of all forces in this work which is so much in the hearts of all of us.

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#### DISCUSSION

R. C. Cook, M. D., State Department of Health, Springfield, Illinois: Doctor Grulee's paper is refreshing because it comes from the hand of one who visualizes an ideal hoped for even though not yet achieved; it is inspiring because it represents a torch bearer in search of a better approach to a satisfying childhood. And who is better able to speak for the pediatricians of America and the children of America than Doctor Grulee?

Regarding infant feeding, it is true that twenty years ago, even ten years ago, the subject of infant feeding occupied about all the "open spaces" in pediatric discussion and writing; the same is too nearly true today. No doubt this is accounted for by the excessively high infant death rate of twenty years ago and especially as related to the artificially fed infants. Marasmus, dysenteries, summer complaints—all associated with feeding—took an alarming toll from the ranks of little children. Pediatricians wrangled over

the virtues of the various infant feeding formulae—the percentage method, the caloric method and others—and still infants died in great numbers and on any and all formulae. But as pointed out by our essayist, babies of today thrive on almost any formula, and this happy result is achieved no doubt by the cooperative efforts of several groups as will now be indicated:

1. Pediatricians are now quite well agreed on the quantity of food a baby needs and the feeding schedule.

2. Pediatricians as a group have been so thrilled with their accomplishments that they have radiated enthusiasm to the general practitioner and he in turn has become interested and informed on the subject of infant feeding.

3. We have better informed parents; a more exacting public opinion; and a better appreciation for the laws of hygiene and sanitation—pure milk, safe milk, pasteurized or boiled milk, and sanitary feeding bottles. We practice better general hygiene on the baby (bathing, cool comfortable clothes, freedom from flies and other insects, restful sleep, etc.) All of these factors have entered into the solution of the feeding problem.

With the feeding problem largely out of the way, our horizon has cleared enough so that we can see the child as an individual (a whole child). In earlier years we were content to have a live child. Now we are satisfied with nothing less than a perfect child, a happy child and a potentially useful future citizen which brings us directly to a consideration of the "newer phases" of pediatric practice with which Doctor Grulee has so vividly brought us "face to face." He set up for us the two outstanding and fundamental problems affecting childhood which are yet unsolved. They are:

1. The social phase of pediatric (childhood) practice, and

2. Health teaching in the schools.

The magnitude of these problems is best expressed in the essayist's own words when he says, "These are problems which cannot be solved by you and me." It will probably take more than one generation to even approach a satisfactory solution.

*Problem No. 1.* We have reduced the infant death rate in Illinois to the low point of 55.8 deaths per 1000 live births, but for the 945 who live we have not evolved a plan that guarantees to even a majority the expert guidance that is so much needed if they are to achieve optimal development. Far too great a number do not have the advantage of medical supervision, parental understanding and community interest that contribute so much to the building of a perfect child. Society is now demanding a solution to this problem, and as I see it there is only one solution based on the following principles that will fulfill the American ideal.

1. Physicians and all informed parents recognize the fact that the best medical service and guidance is rendered by the individual or family physician to his patients.

2. It is within the province of the family physician's rights to assume responsibility for the child's health from birth and at least throughout the school years. (I frequently see mothers with babies, artificially fed,

and even though the baby is not doing well, they often have not consulted their doctor for three to five months. This is true because their doctors have not sufficiently impressed them with the importance of scientific child care.)

3. It is the family physician's duty and responsibility to advise his families regarding immunization against preventable diseases and encourage, even insist, that children be immunized at the proper age.

4. The informed parents will appreciate, they do appreciate, the physician who assumes this personal interest in them and they respond accordingly.

5. The response of the informed families will through example reach all.

We look to the pediatricians to set up for us the standards; to the medical schools to train physicians not only in children's diseases but also in child understanding; and to the community to take more general interest in child life.

As stated by the essayist, it is frequently charged that the medical schools give too little time to pediatric teaching. Pediatricians frequently urge that medical schools should give as much time to teaching children's diseases as they do surgery, and it seems only reasonable that they should since every doctor practices pediatrics while only a minority of physicians practice major surgery. It is estimated that children's practice makes up about 30 to 35 per cent of a doctor's work.

*Problem No. 2.* We come now to a discussion of the section of the paper relative to public and parochial schools—the question of physical examinations and health teaching in the schools, a subject with which I have had a fairly close connection for ten years.

Regarding the school child's medical and dental examination, we know how important it is to the home, the school and especially to the child to have this appraisal; we also know that it is equally important that this examination be made an office routine, making use of all modern aids to diagnosis when needed. But it is only one school out of a thousand or perhaps many thousands that has this service. In most schools the neglect of any sort of examination is so evident that even a hurried and superficial examination is often instrumental in getting some of the most urgent cases to a doctor or dentist.

We appreciate how little knowledge lay groups have of disease and diagnosis when they ask that a doctor examine a high school group or a grade school group to determine whether some may have tuberculosis; yet this is frequently done. We frequently hear from school boards that because some janitor, teacher, or pupil has had tuberculosis they wish the examination of whole groups. They do not know that to do such a job would require weeks of observation, tuberculin tests, X-ray plates, etc. The most good that can come from such examinations at present is the opportunity it gives the examining doctor to talk nutrition, encourage a hygienic life, and enlist the interest of the pupil and the group in personal health and physical development, and encourage the pupil to go to his doctor for a thorough examination. *The ideal will*

*never be reached until "children are their doctor's patient from birth and on throughout the high school period."*

We have had innumerable sporadic attempts by individuals and groups both within the school and without the school to teach health. These attempts, however rash, at least served to hasten the day when the National Education Association and the American Medical Association appointed a joint committee of specialists to set up in detail an outline of objectives in Health Education which they did in 1924. It is true that many teachers never heard of this outline and many teachers are poorly equipped, or not equipped at all, to teach health, but we are somehow finding our way. As far back as 1918 a commission was appointed by the National Education Association to reorganize the curriculum in secondary education. In their report "Cardinal Principles of Education," health was placed first in a group of seven objectives. The situation today is: We find a majority of teachers in all schools—rural, village, and city, teaching health, many of them teaching it well; the poorest teaching it as good as the average of fifteen or twenty years ago when our only method was text book teaching and recitation in hygiene and physiology.

Our teachers today teach *health education* understandingly, teach it as a living subject, not primarily something to be learned but as something to be done. It is an activity program and the reward is not so many gold stars and then a certificate but satisfying outcomes, such as clean body, restful sleep, erect body, good muscles, winning ball teams, etc. Health teaching as I find it in the schools today adheres quite generally to the three recognized fundamental principles set up as the *aims* in teaching this subject:

1. Formation of desirable habits.
2. Create favorable attitude toward the activities done.
3. Information or knowledge of why they do the thing.

It is my experience that the weakest point in teaching Health Education today is the failure of teacher or principle to set up definite objectives for each grade. This, I believe, is more often true of Health Education than of other subjects. I wish here to interpose a quotation from a text book, "Curriculum Principles" by L. Hopkins, Columbia University, regarding "objectives."

"A teacher without an objective is similar to a traveler with no destination in mind."

"An objective is as essential to a teacher as an engineer is to a locomotive."

The teacher of Health Education the same as the teacher of any other subject should have a much broader knowledge of the subject than she is called upon to teach.

In support of my contention that Health Education is for the most part well taught, I wish to present evidence of an activity program in Health Education from the little mining town of Pocahontas in Bond County. This material is from the fifth and sixth grade room and came to our office only this week.



Their principal help and inspiration is their teacher whose qualifications are no better than many others but whose initiative to create and ability to evaluate material and to recognize teaching situations deserves special mention.

One of the health activity programs of the grades referred to above is the publication of a four-page weekly bulletin under the caption THE HEALTH NEWS. This little paper is neatly printed by hand, and then by the use of a hectograph machine the desired number of copies are made. Listed as editorial staff are editor, assistant editor, fifth grade reporter, sixth grade reporter, health and exercise reporter, cartoonist. It is required that each pupil make a contribution to the paper.

After all, the learning we get must come to us through activity. The reason I wish to introduce this one pet little scheme is because I believe it is quite representative of the work being done in many of the schools of the State. It is my personal opinion that some of the best health work done in Illinois is done in the little village of one thousand or fifteen hundred people, where the health program can be made a center of community activity.

That makes me think of a certain town in Southern Illinois where I asked the teacher whether the children, when absent because of illness, have a doctor's certificate before they return to school. He said,

"Yes, they do. My pupils would feel humiliated if they returned to school after being sick without a doctor's certificate, and the other children would make them feel that way."

I thought that was a good way for the children to be taught.

Mrs. N. G. Symonds, Illinois Congress of Parents and Teachers, Hinsdale, Illinois: I am very much interested in Dr. Grulee's paper, because representing a lay group in the State of Illinois and members of a national organization which is undertaking a definite program in health education, there is one point I would like to bring out as a member of a volunteer organization, and that is the fact that the language of professional people is really quite profound. When the medical people begin to cast their terms in simple language I believe they will get closer to the real people.

I feel this strongly, for I am a housewife and mother, principally. My vocabulary differs from the young people and the grown-up child. Now that the children have grown, I find myself having to learn the language of not only my son's business but my husband's profession. But I would like to have the medical profession revise its vocabulary so that we can understand them more readily.

We are very eager to be of service in this educational work. We have a definite program in the parent teachers association throughout the country, but we are a lay organization and our primary effort is to bring about a better understanding between the lay people and the medical people.

This word "ethics" carries a great anxiety on the part of the medical people. That is a fine word, and

quite as important with our people as with the professional people. Part of our program is to bring about a better understanding of this word ethics, for we know you could not have possibly gone so far in your work if you did not have that splendid word of ethics. Individually, we are ethical, too, and we who are leading this parent-teacher organization in Illinois are striving to bring about a better understanding of this word ethics and re-establish the relationship between the individual and his dentist and doctor.

We have an interesting program outlined. We are stressing, as Dr. Cook says, the immunization and vaccination among the children, the actual dental examination, annually, and the pre-school medical examination of children. We, too, are urging a wider use of the health record cards. I believe the report from the White House Conference shows that there were more varieties of record cards found in use than of any other form. When we start in with this pre-school examination, we find we must begin with the record card and have it on file where it can be followed up. If we have these records of the children, we will have something to check up on. I believe in record keeping, for it is after all the health history of the children in the public school system.

There are five things we are drilling upon in the movement in the parent-teacher organizations of Illinois. Immunization, vaccination, examinations, pre-school training and health record cards.

However, we are a volunteer organization and need help and guidance. We are a great channel for this work to be carried out through, this work of child protection. I believe we have been comprising the audience wherever these White House Regional Conferences have been held. Our field is child welfare. We believe we need the help for the children more than anything else. We hold no brief for our position except as a lay group, tremendously interested in bringing about a better understanding between home and school, and after all health is the foundation.

I think if there was one lesson I learned from the great conference in Washington last November it was that we should stimulate the organizations that already exist, and that is a fine thing. These reports handed down to us by the experts in the field have brought together the most complete set of reports ever compiled. They say that since the war period when Hoover called together his splendid men for work in research and food values, there never has been such a group of people brought together whose sincerity or purpose was so great as at this White House Conference, and we feel that we (parent-teacher associations) are the direct channel to carry out these plans.

I believe that if we can strengthen the organizations existing today, the high value of cooperation will result almost automatically. We find that Doctor Hall is one of our best friends. There is no problem we cannot discuss with his office or staff in the hygiene department, and Dr. Hall himself.

I am asking today from the medical people a greater degree of the feeling of trust and belief in our organization. We propose to educate and not try to reform

the work of practical medicine but to educate our lay people to a better understanding of the life before them, the opportunity of establishing a more profound and more substantial health consciousness.

O. E. Ehrhardt, M. D., Springfield, Illinois: I have enjoyed both papers greatly. I feel that today the public is rapidly becoming educated in public health and preventive methods and medicine. People are demanding that we take the leadership in the dissemination of this information, and it is up to us as physicians and public health workers to get behind these other organizations.

Through conferences, most of the public health work and most preventive medicine is done by pediatricians and public health workers. But the example of the sheer lack of immunization in diphtheria and smallpox indicates that we as pediatricians and as public health workers cannot do all of the service required. I think it is more important that we carry the ideas to the general practitioners and get their cooperation. After all, more than two-thirds of the practice of the general practitioner concerns women and children, and it is up to him to disseminate all the information we have to the children and to the parents who in turn can make use of it. That is particularly true in preventive medicine.

I feel that while it may take a long time and will necessarily mean some change in the curriculum of our medical schools, and will mean further education of those doctors out in private practice, certainly in the rural districts, this sort of thing is going to have to be done before we put over in any large measure our preventive measures.

Andy Hall, M. D. (Chairman), State Health Director, Springfield: As evidence of the need of education on public health measures I wish to cite an incident which occurred the other day. One of the district nurses called upon the county superintendent of schools in one of the counties. Just as she was leaving, he called her attention to the fact that his wife read in some paper or journal the night before that children could be protected from diphtheria by immunization!

Only a few years ago a faculty member of the Harrisburg High School, at Harrisburg, Illinois, desiring to find out what information high school pupils had of some of the ordinary medical subjects sent out a questionnaire to fifty high schools in Illinois, Kentucky, Tennessee and Indiana. From the replies it appeared that 59 per cent of the students believed malaria is caused by drinking polluted water, and not by the bite of mosquitoes. Twenty-six per cent believed that the proper cure for rabies is a mad stone applied to the wound caused by the dog-bite. Twenty-three per cent believed that a horsehair placed in a bottle or receptacle of water would cause a horsehair snake.

A stream can rise no higher than its source and until our teachers in their public schools have some better knowledge along the lines of preventive medicine, we shall still have high school pupils in com-

parative ignorance concerning many of the ordinary things in preventive medicine.

Dr. Grulee's Closing Remarks: I was a little afraid my talk on school hygiene would be misleading, or misinterpreted. I am strongly backed up by our Chairman's discussion, however. I have no fault to find with what has been done to help the children along in their quest for health, but I do feel that many things have been taught which are not justified. When 300 of the best scientists in this country go down and discuss hour after hour and day after day the fundamental principles of physical hygiene and come to the final conclusion that there are only a few things they really know, then I think it is rather a hard thing for a teacher to tell the pupils what they should do.

We must get a lot of scientific facts before we can present them properly to the children. We must not take the radio ballyhoo as a textbook for teaching children. I suppose people in this room, all of them, feel that the basic thing to do for children is to give them milk at recess. As a matter of fact, scientific work has proven it is much better to give them orange juice. I suppose our dairy farmers would kick about that, but that is really true. The question is whether you would not be better off not to give them anything at all in the majority of cases. There is an occasional child who needs it but not many. That is just by way of example.

## LEGISLATION IN THE INTEREST OF VETERANS\*

H. H. SHOULDERS, M. D., F. A. C. S.

NASHVILLE, TENN.

I wish to express appreciation of the honor implied in your kind invitation to come up here. I would also like to pay my respects to Mr. Hayes, who is unfortunately absent. I have had several contacts with him during the past year. I have had contacts with no one who has impressed me more with ability and sincerity. I join the doctor in the desire that affairs will so shape themselves that I will be permitted to cast a vote for him for national commander of the American Legion.

I have experienced a deep sense of satisfaction as I sat here because of the surroundings. On my right is a representative of the Medical Association and a representative of the Veterans' Bureau. On my left is a representative of the American Legion. I happen to be a member of all three organizations.

Prior to last year the American Medical Association and the American Legion were shooting

\*Address at the Veterans' Luncheon, Illinois State Medical Society, Springfield, May 17, 1932.



at one another at long range. I say long range because neither saw the other's viewpoint exactly. Each was shooting blindly in a sense. So I experienced great satisfaction at seeing these groups come together at the banquet and the conference tables.

In the past year I have had the pleasure of participating in a conference at the headquarters of the American Legion in Indianapolis and in a conference with these two groups at the headquarters of the American Medical Association in Chicago.

One purpose of the American Legion is the care of disabled comrades to which I subscribe wholeheartedly. I had that purpose in mind when I suggested a plan of service to disabled veterans.

To make logical and effective plans for the medical care of any group of people, it is necessary to know something of their number, their age, their sex, their location, their economic status, their occupations and social conditions, as well as to have information as to the peculiar types of conditions (diseases and injuries, if any) likely to arise among them.

About 4,500,000 men and women in the United States are classed as Veterans. All but about 30,000 are men. Their average age is about 40 years. Of these a vast majority are veterans of the World War. The next largest number are veterans of the Spanish American War, and the third largest group, veterans of the Civil War.

Based on the most reliable information obtainable as to distribution, it can be said that these veterans are located in every state, every city, every township and every rural district in the United States. Their distribution is not materially different from that of the population of the country as a whole.

Veterans occupy every round of the economic ladder. From the beggar on the streets to the prince of wealth. In so far as I can learn, the number found in each of the various economic groups corresponds proportionately to that of the population of the country as a whole.

They are engaged in every form of activity known to our country. There are laborers in industry, farmers, both tenant and owner, clerks, executives, professional men, doctors, lawyers, preachers, politicians and statesmen. Veterans are found in every group. It is reasonable to

assume that a vast majority of them are married men or women and the heads of families.

With certain exceptions to be mentioned later, the disabilities (diseases and injuries) to which they are subject are the same as those to which other men of a similar age and occupation are subject. Of course the exceptions are certain types of injuries received in the war which are not often met with in civilian life. For example, the nervous condition designated "shell-shock," in the veterans of the World War, and amebic dysentery among veterans of the Spanish American War. Veterans are now civilians. They are engaged in civilian pursuits. They are living the lives of civilians.

The diseases and disabilities which this group of people will suffer as time goes on, are those which will afflict the rest of the population of the country. The most prevalent acute diseases will be acute respiratory conditions such as influenza and pneumonia, acute surgical diseases such as appendicitis and cholecystitis, acute injuries such as result from automobile and industrial accidents, etc. Other diseases will be the heart diseases, kidney diseases, cancer and other degenerative diseases. The acute conditions which ordinarily attack young adults will not occur with great frequency in this group.

*Physical Condition.* The physical condition of this group, as a whole, is superior to that of a like number of men and women of a similar age, excepting those who suffered war injuries. To substantiate this statement consider that:

First, men who are not physically fit are not taken into the Army or Navy. Over thirty per cent of the men who were registered under the draft act were rejected on account of physical defects.

Second, veterans of the World War constitute a vast majority of the total number of veterans. Of this number only a relatively small proportion saw front line service. About half of the number left the shores of the United States. About 400,000 of them were in the Student Army Training Corps, in colleges and universities of this country during their entire military careers. All of these men received physical training regarded as beneficial. All received instructions and practice in hygiene and sanitation. All received treatment to immunize them against typhoid fever and smallpox. For these reasons, the disability rate of this group of people should

not be as high as that of any other group of similar age, size and distribution in this country.

It is obvious that our task is not that of planning medical and hospital service for an isolated group. Such a group, for example, as soldiers in the fields, or in camps; or a group of industrial workers employed in some one industry. Nor are we planning for people who occupy one particular economic sphere. One's inevitable conclusion is that the medical and hospital needs of veterans will correspond to those of the people of this country as a whole, with the exception of the diseases of women and children.

*Plans Already in Effect.* At this point it is necessary to make brief reference to some plans already in effect for the care of this group of people.

When the World War ended the Government set about making provisions for the care of those soldiers who had incurred disabilities during their military service. Hospitals were built or acquired. Contracts with civilian hospitals were made. A medical personnel was employed, and an elaborate organization set up for the purpose of giving these men every attention possible. In the fall of 1922 an effort was made to effect a contact with every veteran who had any disability whatever with a view to giving him an examination to determine if his disability had any service connection.

The Congress of the United States began the enactment of legislation in the interest of disabled veterans. As was natural, under our system the legislation was not always well planned. In one instance, a group of veterans would sponsor a piece of legislation that would affect some particular group of veterans. In another instance a Congressman would originate a bit of legislation that would affect another group of veterans, and so on. By the enactment of a large number of separate bills affecting various different groups Federal legislation in the interest of veterans gave something of the appearance of a crazy quilt.

In 1924 all the legislation in the interest of World War veterans was codified into what became known as the "World War Veterans' Act" of 1924.

It will be remembered that up to this time most of the legislation was in the interest of those veterans who suffered disabilities from injuries or disease while in service. These are

called service connected disabilities. In this year (1924) legislation in the interest of disabled veterans, who suffered no disability from war service, began. Among the early bills was one which provided that an ex-soldier of the World War who developed tuberculosis at any time prior to 1925 is presumed to have contracted the disease in service or that the disease was aggravated by service, thus making such cases of tuberculosis service-connected by legislation.

Also in 1924 the Congress went a step further and enacted the first part of Paragraph 202-10 of the World War Veterans' Act. The essential provisions of this paragraph are that free hospitalization and traveling expenses to and from the hospitals are provided for veterans suffering from six specified conditions which are not of service origin. These six conditions are: neuropsychiatric conditions, tuberculosis, paralysis agitans, encephalitis lethargica, amebic dysentery and the loss of the sight of both eyes. Veterans with these conditions were eligible to these benefits so long as beds were available.

It will be remembered that in 1924 a large percentage of beds in veterans' hospitals had been vacated by reason of the fact that veterans with service connected disabilities had recovered, died or reached such a state of improvement that hospitalization was no longer needed.

It is obvious from the wording of this paragraph that the sponsors of this legislation thought that veterans suffering from these particular conditions might just as well occupy vacant beds in veterans' hospitals. Especially is this true in view of the fact that facilities for the care of the insane and for the care of the tubercular were crowded. In just a short while this particular paragraph (202-10) was amended and this amended amendment empowered the Director of veterans' affairs to furnish free hospitalization and free transportation to and from the veterans' hospitals to all veterans who need hospitalization *without regard to the nature or origin of their disabilities*, with the additional provision that these benefits are to be allowed so long as beds are available. In such a manner the original provisions of Paragraph 202-10 affecting veterans with six definite chronic conditions was broadened so as to include every form of disease or disability suffered by any veteran without regard to his economic condition and



without any regard whatever to the origin of the disability.

Pursuant to the powers thus created Congress appropriated money for the construction of veterans' hospitals in large numbers and the construction has gone on as rapidly as money has been appropriated. Thus was inaugurated the Federal system of hospital, medical and surgical service for all diseases and injuries of all veterans requiring hospitalization without regard to service or without regard to the nature or origin of disabilities.

If such a program or policy is to be carried to its logical conclusion, and there is no reason to doubt the intention of the Congress and the veterans to carry this policy to its logical conclusion, it simply means the construction of a sufficient number of veterans' hospitals throughout the United States to accommodate all of the hospital needs of all the veterans.

It requires little thought for one to recognize that such a program could not be completed in a short period of time. For this reason the facilities at the present time are wholly inadequate to accommodate the needs of veterans. Therefore, only a small part of veterans can be benefited. It is perfectly obvious also that the time will come soon when the number of beds will exceed the needs of veterans. It is also obvious that such hospitals would be of little use to veterans suffering from acute emergency conditions.

Thinking of this particular situation I was driven more and more to the conclusion that this program on the part of the Federal Government is unnecessary under existing conditions. That it was unsound from the standpoint of public policy; that it was unsatisfactory from the standpoint of the veteran and uneconomical from the standpoint of the Government. So I sought to work out a plan whereby the veteran who is disabled would receive financial aid from the Government which would still enable him to remain in the normal channels created for the care of all sick people—namely, in the care of the physicians and hospitals at or near his home, and at the same time preserve to the veteran the privilege of making his own selections as to his doctor and hospital.

In an attempt to carry out such a policy thought naturally turns to some sort of disability insurance. This is a form of protection which a large per cent of people purchase for them-

selves. It is a form of protection with which we are all familiar. It has been found satisfactory in meeting the needs of people. Such protection is being sold in increasing volume all the time. Individual policies are sold; group policies affecting large groups are sold. Such a plan was incorporated into Workmen's Compensation Laws throughout this country.

The carrying out of such a plan would involve the Government in no construction at all. All the money spent by the Government, except a small cost of administration, would go direct to the veteran when disabled from any cause not service connected. Every veteran would be equally benefited regardless of whether he lives in some remote section or next door to a veterans' hospital. The benefits would be available to veterans immediately without waiting for the completion of an enormous hospital program.

So I wrote out a brief statement of such a proposal in the form of a resolution and presented it to the House of Delegates of the A. M. A. in Philadelphia, last year. The result of the adoption was an immediate kick-back from veterans all over. I received condemnatory letters from almost everywhere from men who knew nothing of the details of the proposal. I have since received endorsements from many of the same men, who have been more thoroughly advised as to its workings.

#### THE PLAN

A tentative draft of an amendment to the World War Veterans' Act with these principles embodied in it has been made by me. Its provisions, briefly, are:

1. That the Government issue to every veteran a disability insurance policy, or certificate of disability benefits, with benefit provisions as follows:

- (a) The payment of a cash benefit to a veteran during any period of total disability for causes which are not service-connected.

- (b) The payment of a hospital benefit in addition to the cash benefit during any period of hospitalization for causes not service-connected.

Please bear in mind that all diseases which are of service origin are not affected by this plan; and under the provisions of the tentative draft the six diseases mentioned in the first part of 202-10 are not affected by this plan by which, too, all other disabilities would be treated.

In the tentative draft it is provided that the cash benefit shall be \$12.50 per week and the hospital benefit \$4.00 per day, payable to the veteran. These amounts may not be just what they should be but the weekly cash benefit is in line with the amount of weekly benefit paid under Workmen's Compensation Laws in this country, and the hospital benefit of \$4.00 per day is in line with the cost of administering general hospitals in this country. These amounts could be adjusted to conditions as they arise in the future without changing the plan or system of administration.

*The Administration of the Plan.* The Administrator of veterans' affairs in Washington would become the administrator of this law through the Bureaus which are already established throughout the United States.

There is a Veterans' Bureau in every state and a physician appointed in many of the counties of the various states who is known as "designated examiner."

Details of the administering would correspond to those of a private insurance concern, more or less familiar to all.

A veteran is taken ill or receives an injury. He calls his physician who takes charge of his case. He is removed to a hospital or not, as the case may require. The disability is reported to the Veterans' Bureau. If hospitalized this fact is reported. The Veterans' Bureau can make such examination as it may deem necessary to determine whether or not the claim thus filed is bona fide. If it is found to be bona fide it is paid. If it is found not to be bona fide it is disallowed. By such a check fraud would be prevented if attempted, but in the case of genuine disability the aid comes at the moment when needed and is of a character that is needed. That is all there is to it.

Compare this with the administration of veterans' hospitals. We will assume that the same veteran is ill with the same condition. The veteran calls his physician who advises him that hospitalization is needed. Then the condition must be reported to the Veterans' Bureau. The Veterans' Bureau must make an examination of the veteran to determine if hospitalization is needed. When this examination has been made and hospitalization determined upon then the Veterans' Bureau must locate a vacant bed in a veterans' hospital, and then make arrangements

for the transportation of the veteran to that particular bed. Now contemplate the delay and the complications incident to the administration of this particular form of benefit to a veteran who resides at some distance from a veterans' hospital, and who is suffering from some emergency condition.

I might cite you at this point a few examples. I will cite one to illustrate the point.

A veteran who lives some sixty miles from Nashville was taken ill in the afternoon with pain in the abdomen. He went home and took a purgative, paregoric and various other home remedies. The following morning he called in his doctor. The doctor diagnosed the condition acute appendicitis. He put him in his car and brought him to my office with a view to my operating on the man. The man knew he had the right to go to Memphis to the Veterans' Hospital and demanded that he be sent to Memphis. It is 240 miles away, so I contacted the Veterans' Bureau and told them the circumstances and asked that the man be examined. A doctor was sent and the diagnosis was confirmed. That was about noon following the day of onset. The next train to Memphis ran at 11 p. m. He was held over. An attendant was put with him. He was sent to Memphis and arrived the following morning and was operated on that day. Instead of him being a twenty hour appendix he was a forty-eight hour appendix when operated on. The last I knew of the case he had been in the hospital some three months. It is possible that he had drainage with a weakened abdominal wall and may be in line for some form for permanent disability.

So much for the administration of the two plans.

But other questions naturally arise. One of the first is this—Are there adequate facilities in the United States for the care of these veterans and the civilian population. This may be disputed but I assert on what I think is good authority that the facilities are adequate.

Consider for a moment what constitutes good medical attention. *Good medical attention consists primarily of the attention of a good doctor whose efforts are supplemented by facilities such as laboratories, hospital equipment, instruments, nursing, etc., as the case may require.*

The institutional factor has been over-emphasized in the last few years in connection with the



care of sick people. Capable authorities have often urged that the attendance of a good doctor with the nursing care that is available in the average home in the United States constitutes all the care that is necessary for a majority of illnesses that occur. I don't think this statement would be disputed by anyone who has had experience with the care of sick people.

The need of hospital facilities and laboratory facilities for those who need this type of attention goes without saying. It needs no emphasis.

To hospitalize a patient who does not need it is of no advantage to the patient and adds enormously to the cost of his care. On the other hand to fail to hospitalize a patient whose condition does need it and to fail to attend to it promptly is to fall short of the proper care and subjects the patient to hazard of both life and function.

Are capable doctors and hospitals available in the United States? First, as to doctors. There are over 140,000 doctors, of whom over 91,000 are members of the American Medical Association. The number certainly is adequate. As to their ability a few statements will suffice. About 30,000 of them fourteen years ago were found qualified for the service of the Army and Navy. About 9,336 are qualified for membership in the American College of Surgeons. A similar number are in the American College of Physicians. Large numbers are members of various other special groups which require superior qualifications for membership.

A large portion of the membership of this Association is familiar with the steps that have been taken in the last twenty-five years to improve the qualification of doctors. You are familiar with the results that have been obtained. I believe that you will all agree with the statement that the medical services rendered by doctors throughout the United States is equal if not superior to that rendered in any country on earth.

There is no need of my discussing at any length the training that graduates of medicine have had since the World War. These doctors are distributed proportionate to the population as a whole. They are so located as to be available and in easy reach of most any point.

Second: Hospital facilities. You are familiar with the tremendous progress that has been made in recent years with reference to hospitals. Their

number has increased enormously. The quality of their service has increased correspondingly. As of 1931 there were 6,767 hospitals in the United States.

The College of Surgeons some years ago began the work of standardizing hospitals. Not all hospitals have requested a classification by the College, but a sufficient number have been examined and approved to give us a definite idea of the hospital facilities of this country as a whole.

There are 2,158 hospitals on the approved list of the College for the year 1931, with a total bed capacity of 324,216. Of these beds 23 per cent are unoccupied. Their distribution proportional to the population; large ones in large centers; small ones in small centers, etc. Of this number 64 are Veterans' hospitals. The other government hospitals are Army and Navy and Public Health Service.

*Display of the Map.* It is necessary to give emphasis to the distribution of hospitals because their distribution has a definite bearing on their availability for services for routine injuries and illnesses requiring hospital care. Chronic conditions such as insanity, tuberculosis, etc., may be hospitalized a long distance from home. Delay of admission for a short time is no serious matter. Delay in the case of acute appendicitis may mean the complication of peritonitis, or abscess formation. It may mean death or prolonged drainage and some degree of permanent disability. So hospital facilities not only must be adequate—they must be so located as to be available without delay and long travel.

The economics of the plan. Someone may suggest, as has often been suggested, that there is no provision in the plan I proposed for doctors' fees. My answer is that it was purposely left out. It is the common practice of doctors to do worthy charity without cost. Their charges, when made, are proportioned to the ability of the patient to pay. Doctors then will look to the private resources of the veteran for their remuneration. Those able to pay will pay. Those not able to pay will not pay.

*Hospitals.* The hospitals of this country are eleemosynary institutions. Their charges for service vary from nothing to several dollars per day in the same institution where the same laboratory, the same x-ray equipment, the same technicians, the same personnel and practically

the same service is given to charity, part-pay and full pay patients. A large number of hospitals are operated by the Catholic Church. Others by Protestant denominations such as Methodist, Episcopal, Baptist, Presbyterian and others by Jewish people. Some are supported by fraternal orders. Others are partly supported by the county and municipalities. They are not run as profit making institutions. Their purpose is the care of the sick people in the community in which they exist.

The hospitals are not perfect. No one could say that the government is perfect, or that humans are perfect. I do believe that there is ample evidence to support the assertion that the United States is better supplied with excellent hospitals than any other country on earth.

I would insist, therefore, that the facilities for the proper care of veterans, both as to doctors and hospitals, exist already in the United States. Under the plan proposed the veteran seeks and obtains the services of the doctor of his preference in his community. If hospitalization is required he would seek and obtain admission to the hospital of his choice. If he is a Catholic he prefers a Catholic hospital—he is more contented there. If he is a Protestant the same rule might apply. He obtains hospitalization in close proximity to his home where he can be visited by his family which will promote his contentment.

The money paid by the government to the veteran in the way of hospital benefits would go to the treasuries of the hospitals. It would be expended by them, not in dividends to stockholders, but in improving the equipment and service of the hospitals. Thereby the hospital service of the country for the veteran and non-veteran alike would be improved.

This plan steps in as an aid to the veteran who is disabled but does not need hospitalization at all. The veterans who can receive adequate treatment at home had better be left at home.

It may be alleged that the veteran may make a poor selection of a doctor, or that he may be tempted to become a malingerer and draw payments to which he is not entitled. It is perfectly reasonable to assume that a relatively small number of veterans might select the doctors least capable of rendering service. In that event the *designated examiner* for the Veterans' Bureau in the same community would make an examination of the veteran. If the veteran is malingering it

would be discovered and his claim disallowed. If an error in diagnosis has been made, an opportunity for correction is thereby afforded. A consultation has been brought about between the good doctor and the poor one in the interest of the veteran. The operation of this plan would, therefore, tend to improve the medical attention veterans are receiving at home throughout the country today.

*Cost.* The cost of the operation of this plan must be within reason. It is determined by three factors, viz: 1. The disability rate. 2. The amount of cash benefit, and 3. the amount of the hospital benefit.

An enormous experience has grown up in this country on which to base an estimate of disability expectancy. One week per year per person among industrial workers, both men and women, both colored and white, is the usual disability experience.

Veterans should not give a disability rate so high, as their age is a favorable factor; their physical training is a favorable factor and their sex is a favorable factor. Men experience a lower disability rate than women and there are relatively few women in this group. Further, the chronic diseases of service origin are eliminated from this plan, in addition to the six conditions named, insanity, tuberculosis, encephalitis, etc.

For all these reasons, and others which might be mentioned, these veterans should experience a disability rate much lower than one week per year per person. For the purpose of computing costs, this rate of disability will be used.

In the tentative act drawn, a ninety day service clause was inserted which eliminates those veterans who served less than ninety days. It reduces the number of veterans to about 4,000,000. These 4,000,000 veterans will experience 4,000,000 weeks of disability the first year. The cash benefit will amount to exactly \$50,000,000. The disability rate will diminish each year. The cost will diminish each year in proportion. In 20 years the cost would be negligible. Of the 4,000,000 weeks of disability about 10% will require hospital care. This is a liberal estimate for the following reasons:

First, as before stated a majority of cases of acute illness do not require hospital care.

Second, illnesses which do require hospital care do not require it for the entire period of their disability. For example, a case of acute



appendicitis is operated on early and discharged from the hospital in one week to convalesce at home. His period of disability may exist for six weeks, depending on the nature of his work. The same is true of acute injuries, gall-bladder disease, gastric ulcer, etc. So this is not an estimate given to make the costs appear small. It is a liberal estimate, logically arrived at.

Ten per cent of the weeks of disability is 400,000 weeks requiring hospitalization. At the rate of \$28.00 per week the hospital benefit amounts to \$11,200,000.

Cost of administration should not be in excess of 5% of the total benefits, in line with the costs of administering benefits by insurance companies. This item at this rate amounts to about \$3,060,000 for the first year, making a total cost of \$64,260,000 the first year.

As time passes the number of veterans will diminish, and the costs will decrease until the last veteran has passed away. Then the plan ceases to be. There are no buildings and equipment to be abandoned, no large personnel to be disbanded. Civilian medical and hospital service will progress along the usual lines undisturbed by the effects of a dual system of rendering service—one operated by the Government, the other by private enterprise.

This plan is in line with well established precedent as to governmental policies which is that of encouraging private enterprise. The government is now lending its credit and money to encourage private industry. The government does not go into manufacturing because that line of business has faults. It does not build railroads or engage in commerce. It rather pursues the policy of aiding these enterprises and acting as umpire to the end that they be conducted efficiently and in the best interest of the public. Such a policy encourages, it does not stifle individual initiative.

In this insurance plan of benefits to veterans the government acts in the capacity of umpire. It passes on the question as to whether claims are just and as to whether the proper institutional services are rendered.

There is the widest possible difference between the policy under which the government administers benefits in the form of cash which enables the veteran to obtain medical and hospital services as the case may require in the channels already created for the purpose, and the policy

which puts the government in the business of creating the facilities, employing the personnel and rendering the actual services to veterans. The latter is state medicine complete and absolute insofar as 4,000,000 people are concerned. The other is a form of financial aid exactly when needed, to those to whom the government has assumed a definite obligation.

#### THE COST OF GOVERNMENT HOSPITAL PLAN

The cost of constructing, equipping, staffing and maintaining a sufficient number of government hospitals to accommodate all the hospital needs of all veterans, to say nothing of the cost of transporting veterans to and from the hospitals, is difficult of estimation. The most conservative estimates possible run into figures that are perfectly enormous. For example, the cost of construction per bed is \$3,500.00. The cost of maintaining general hospitals is \$4.42 per day per bed. The cost of the professional staff is \$151.00 per year per bed. The cost of admitting the patient—that is the transporting of veterans—is approximately \$30.00 per admission. The cost of equipment would be enormous.

A member of the medical council of the Veterans' Bureau estimated that 129,859 hospital beds would be required to meet the needs of all these veterans. This is merely an estimate, in my opinion a very conservative estimate, but no one knows. Based on this estimate the cost of constructing the additional beds would be in round numbers \$300,000,000. The cost of the professional staff would be approximately \$20,000,000 per year. The cost of maintenance would be approximately \$200,000,000 per year, and mind you, it would be necessary to enlarge the Veterans' Bureau to maintain such a system of hospitals because the Bureau would have to do with the examination of veterans to determine the need of hospitalization and with arranging their transportation, etc.

In a few years a large number of veterans now living will be dead. The number of hospital beds would be in excess of the number needed, and so on. This excess of beds would increase until the last veteran is gone and no bed would be needed at all. What would happen then? Would anybody be so rash as to dream that such an organization and such buildings and equipment, and such a large group of people would ever be abandoned.

In this connection it might not be amiss to remind you of what is happening in Congress today.

Everybody has agreed that there are many bureaus and departments which are expensive and not at all necessary, yet those departments have developed a sufficient political power to resist their political destruction in spite of the added force of the worst economic depression that has ever come upon us.

I can see no ground for hoping that such a program would ever be abandoned but to the contrary I see good ground for believing that such a program would be enlarged until it has engulfed medicine in America.

Anatole France said, "The future is hidden from us all, even from those who make it." However true this may be, I cannot help but entertain a fear as to what the future of medicine in America may be if the Federal Government constructs and maintains hospitals of all types in sufficient number and so distributed as to meet all the needs of all veterans.

Doctors Building.

#### URINARY ANTISEPSIS—INTRODUCTION OF A NEW PRODUCT FOR ORAL USE†

DORRIN F. RUDNICK, M. D.\*  
CHICAGO

The search for an efficient urinary antiseptic continues feverishly. A review of the literature of the last decade reveals a shifting of the medical profession from one type of therapy to another. It is interesting to note the cyclic enthusiasm and popularity which follows introduction of a new type of chemical compound or a new mode of administration.

Failure of new oral drugs swings the pendulum toward intravenous therapy. Failures with the latter have led to new studies of vaccines, both stock and autogenous, and more recently of bacteriophages.

All these various methods have had successes and failures, which well they must, because the "ideal" urinary antiseptic, that will work in every case, has not, and I believe never will be found.<sup>1</sup> Every case of urinary infection is a

problem in itself and requires painstaking study with all the resources at the command of the urologist.

The importance of routine, thorough urological study will become apparent at once when one considers all the possible lesions that may be contributing factors in urinary infection.<sup>2</sup> Such factors as urinary stasis, calculus, new growth, tuberculosis and trauma represent a few of the various conditions which must be investigated and corrected, when possible, before any antiseptic can prove effective.

Careful clinical study of the patient will in many cases suggest the source of the infection.<sup>3, 4</sup> Tuberculosis, bowel disturbances, infected teeth, tonsils and other focal infections are often contributing factors.

Bacteriological and chemical study have recently been emphasized more and more. The

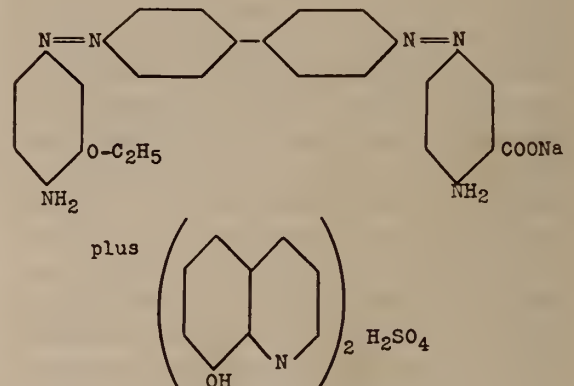


Fig. 1. Chemical Formula  
Diphenyl-disazo-ethoxyaminophenol-aminobenzoic  
Sodium plus Hydroxyquinoline sulfate.

causative organism must be known. Even yeast and parasites are offenders.<sup>5, 6</sup> The chemical characteristics of the urine as a culture medium must be studied repeatedly because of the behavior of the bacteria under varying circumstances.

The development of so-called drug-fast characteristics in bacteria and the consequent necessity for drug rotation has been repeatedly emphasized.<sup>7</sup> The regulation of acid-base equilibrium by diet, mineral waters and chemicals, both acidifiers and alkalizers, has received a great deal of investigation in recent years, especially by German investigators.<sup>8</sup>

*Modes of Combat.*—Intravenous chemotherapy has received a long and varied trial. Hexame-

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†Read before the Chicago Urological Society, May 25, 1932.



thylenamine and its derivatives, also acriflavine, mercurochrome, neo-salvarsan, and many other drugs have been used by this route.<sup>9</sup> The limitations of hexamethylenamine are now well understood. Neo-salvarsan obtains miraculous results in some cases, especially those in which Gram-positive organisms are the cause, but fails utterly in the majority. The other substances, especially mercurochrome, produce excellent results in some cases, but because of the severe systemic reactions which often follow, their use has been largely limited to desperate individuals.

*Oral Medication.*—The use of dye compounds as anti-bacterial agents starts with Ehrlich and gained new impetus during the world war with methylviolet, brilliant green, naphthalin derivatives and acridin compounds.

After the war came derivatives of fluorescein, such as mercurochrome and recently a large variety of azo compounds has been developed.

All the dyes mentioned are of varying antiseptic value and have limitations, particularly when administered orally. Gentian violet, mercurochrome and acriflavine produce gastrointestinal upsets of such degree as to preclude their general application.<sup>4</sup> The staining of utensils and the patients' clothing is objectionable. It is exactly this staining power, however, on which most of them depend for their therapeutic activity that makes them least agreeable to the patient, aside from their high cost.

*Objective.*—This investigation was undertaken primarily from the standpoint of the urologist, that is, to develop a product for oral administration in genito-urinary infections, particularly gonorrhea. The development of the compound was the result of two years extensive research along the lines of azo compounds, by Joseph Ebert, Ph. D., of Philadelphia, to whom I am indebted.

The goal which we set for our new azo compound was that of Davis,<sup>1</sup> namely, a chemically stable compound, comparatively non-toxic and non-irritating to the urinary tract, eliminated unchanged by the kidney, and exerting a definite antiseptic action in high dilution in urine of any reaction. In addition we proposed, if possible, to eliminate staining and keep the cost of the product within easy reach of the wage earner.

Furthermore, we had in mind the possibility

that a dye might be found of bactericidal and bacteriostatic value which, in itself, being colloidal could be combined with another chemical compound of antiseptic value with the result that the antiseptic properties of the final product would be materially higher than of either agent singly.

Chart 1

Bacteriological Tests on  
Diphenyl-disazo-ethoxyaminophenol-aminobenzoic  
sodium.

Organism: *Staphylococcus pyogenes aureus*. (Red-dish Method).

Bacteriocidal			
Dilution	5 min.	10 min.	15 min
1-100 .....	—	—	—
1-500 .....	—	—	—
1-1000 .....	—	—	—
1-1500 .....	+	—	—
1-2000 .....	+	+	—

	<i>Bacteriostatic</i>				
Dilution	1-500	1-1000	1-1500	1-2000	1-3000
	—	—	—	—	+

Bacteriological Tests on  
o-Hydroxyquinoline Sulphate

Organism: *Staphylococcus pyogenes aureus*. (Red-dish Method).

Bacteriocidal			
Dilution	5 min.	10 min.	15 min
1-100 .....	—	—	—
1-500 .....	+	+	+
1 1000 .....	+	+	+
1-1500 .....	+	+	+
1-2000 .....	+	+	+

Bacteriostatic						
Dilution	1-500	1-1000	1-2000	1-5000	1-10,000	1-20,000
	—	—	—	—	—	+

The azo compound number 104 in our series seemed to meet these requirements. It is the Sodium salt of Diphenyl-disazo-ethoxyaminophenol-aminobenzoic acid. This substance was tested in vitro against *staphylococcus aureus* and showed a completed bactericidal effect in ten minutes in a dilution of 1:2000 and equal bacteriostatic strength. (Chart 1.) It is practically insoluble in water. It is of yellowish-brown color and shows a remarkable colloidal behavior. On mixing it with o-Hydroxyquinoline sulphate (or other o-Hydroxyquinoline salts) the rather astonishing observation was made that the bacteriostatic value of the mixture increased one hundred times tested against the same organism, although the bactericidal strength remained the

same. (Chart 2.) The structural formula follows:

### Structural Chemical Formula

#### Chart 2

#### Bactericidal Tests on

Diphenyl-disazo-ethoxyaminophenol-aminobenzoic  
Sodium plus Hydroxyquinoline sulfate.

Organism: *Staphylococcus pyogenes aureus*. (Reddish Method.)

Dilution	5 min.	10 min.	15 min
1-100 .....	—	—	—
1-300 .....	—	—	—
1-500 .....	—	—	—
1-1000 .....	—	—	—
1-1500 .....	—	—	—
1-2000 .....	+	—	—
1-3000 .....	+	+	+
1-5000 .....	+	+	+
1-6000 .....	+	+	+

#### Bacteriostatic Tests on

Diphenyl-disazo-ethoxyaminophenol-aminobenzoic  
Sodium plus Hydroxyquinoline Sulfate.

Organism: *Staphylococcus pyogenes aureus*.

Dilution	1-1000	1-2000	1-4000	1-8000	1-10,000	1-15,000
	—	—	—	—	—	—

Dilution	1-20,000	1-30,000	1-50,000	1-60,000	1-75,000	1-100,000
	—	—	—	—	—	—

Dilution	1-150,000	1-200,000	1-300,000	1-400,000	1-500,000
	—	—	+	+	+

This point, as well as further bacteriological and pathological tests,\* seemed to indicate to us that it is entirely possible to use this dye as a colloidal carrier of a more powerful antiseptic for oral administration.

I suggest the shorter name Ambazin for this combined compound because it suggests its azo character with two amino groups.

The minimum lethal dose was established as 800 mgm. per kilo body weight determined by the intramuscular injection of the aqueous suspension in rats.

*Elimination.*—The dye mixture is excreted in the urine of normal color but can be detected in the urine or feces by chemical tests. Addition of strong hydrochloric acid produces the hydrochloride of the dye which is a more or less deep wine-red color, depending upon the amount of dye present. The oxyquinoline may be detected by making the urine alkaline with sodium hydroxide, the free base forming a voluminous precipitate. We have no data on elimination through the skin nor have we noted its appear-

ance on the breath. The dye is converted in the stomach into its hydrochloride, the extent depending on the acidity of the gastric juice. The oxyquinoline sulphate passes through the stomach unchanged. The hydrochloride of the dye is reconverted in the intestinal tract into its sodium salt while the oxyquinoline sulphate is changed to its free base, both reactions depending on the degree of alkalinity of the intestinal juice. Each capsule contains 0.2 grams of substance, the dye and oxyquinoline sulphate being in equal proportions.

The average duration of elimination is 48 hours. From eighty-four to ninety-two per cent. of the compound ingested is eliminated in the urine and eight to ten per cent. in the feces. This latter fact may prove to be of interest in the treatment of intestinal infections, especially when associated with chronic colon bacillus urinary disease. Other uses have not been investigated although it is believed the compound should prove of value in certain other diseases of infectious character.

It has been shown that some of the drugs used for urinary antiseptics are excreted in the urine in limited percentages, a large amount being eliminated through the bowel. The reason for their beneficial effect is ascribed to the antiseptics produced in the gastro-intestinal tract,<sup>4</sup> or a secondary toxic effect on the bacteria similar to a protein injection.<sup>10</sup>

The high bacteriostatic value seemed of particular significance to us as it could be safely assumed that the oral administration of the therapeutic dose of the compound would set up a bacteriostatic field in the entire urinary tract. This is often accompanied by increased blood leucocytosis and presumably phagocytosis.

Extensive clinical work during the past ten months has substantiated our chemical and bacteriological findings.

#### PRELIMINARY CLINICAL REPORT

The initial and most extensive work, so far, has been carried out on gonorrheal and non-specific urethritis and their complications. The following subdivisions present a composite study of all our cases. These cases represent a clinical study both in private practice and hospital clinics.

*Subdivision A.*—A group of thirty cases of acute anterior and posterior gonorrhea received

\*This study was conducted by Dr. Malcolm J. Harkins, Bacteriologist of The Research Institute of Cutaneous Medicine, Philadelphia.



Ambazin capsules singly and conjunctively with urethral injections of various solutions of silver salts. In this group the average duration of treatment to end of observation totaled 7.5 weeks. A study of the time element in relation to disappearance of discharge and freedom from organisms showed an average period of 4.2 weeks. Final check-up included negative prostatic smears, passage of a sound, indulgence in alcoholic drinks and intercourse with a condom.

In this clinical subdivision six cases responded to treatment with capsules alone and were maintained on that technique. Twenty-four cases were treated with the combined measures of capsules and injections of silver solutions.

Although the outcome in both groups was about the same, averaging 7.7 and 7.5 weeks, respectively, it was not our intention to disprove the need for combined therapy. We were endeavoring to determine the effect of Ambazin and incidentally see if either method would be more likely attended by complications.

One case developed a mild epididymitis which subsided within four days. One case of epididymitis was presented for treatment that subsided after one week's medication with capsules only and then continued to an uneventful conclusion on the combined technique. One developed an acute posterior urethritis while under treatment. No secondary reactions, such as prostatic abscess, prostatitis or gonorrheal arthritis were observed in this group.

A large variation of silver solutions was used without any noticeable difference.

*Subdivision B.*—Twelve dispensary cases, while not returning for final check-up to satisfy our clinical determination of cure, were free from discharge and organisms. The rapid disappearance of symptoms was again noteworthy. This absence of discharge probably satisfied most of these patients that they were cured. The average duration of treatment of the twelve cases were 3.4 weeks to freedom of symptoms and organisms and 5.5 weeks to end of observation. No complications were observed.

*Subdivision C.*—The failure of twenty cases to attend the clinic regularly for four consecutive weeks made their records valueless for comparative purposes.

*Subdivision D.*—Recognizing the possible advantages of the compound when given as urethral

injection and irrigation, a series of ten cases was tried on a routine which included either one or both of these measures together with oral medication. An aqueous suspension of 0.5% strength was used but clinical results were not encouraging due, we believe, to the possibility of too high a concentration. Frequently the patients were organism free in the period averaged by the other groups, but they developed a typical chemical urethritis that often persisted until controlled by astringent measures. The average course of treatment was 14.5 weeks. For this reason the use of Ambazin in suspension form was abandoned until further research on this phase of application can be undertaken.

*Subdivision E.*—A series of seven miscellaneous cases that responded favorably included the following: Two cases of non-specific urethritis responded in four and six weeks, respectively. One case of chronic gonorrheal prostatitis responded following seven weeks treatment and another similar case following nine and one-half weeks treatment. One case of chronic anterior and posterior gonorrhea in nine weeks and one case of gonorrhea with a mixed infection in seven weeks.

Two cases of non-specific prostatitis in this group failed to respond.

The usual measures, such as prostatic massage and deep instillations, were employed without any supplementary medication other than Ambazin.

*Subdivision F.*—A series of twelve cases of acute anterior and posterior gonorrhea failed to respond. Only five of these cases were on our so-called standard treatment. The balance received the Ambazin suspension (injection and irrigation) and the results were influential in our decision to drop its use.

*Technique.*—The standard treatment routine consisted in giving one Ambazin capsule, three times daily, with a limitation of the fluid intake to 1500 cc. in twenty-four hours, to provide a concentration within the maximum therapeutic range of the drug. A bland diet was recommended, with complete abstinence from alcoholic drinks or sexual excitement.

If the case was hyperacute, or complicated, we withheld injections of all kinds until the symptoms subsided and the second portion of the two glass urine test became clear. Ambazin alone

would accomplish this in the majority. A few severe cases were given sodium bicarbonate, bromides or hyoscyamus.

The local treatment consisted of instillations two to three times daily. The solutions used were argyrol, protargol, neo-silvol and silvagon, without appreciable difference in results.

Cure was determined by repeated microscopic study of the urethral discharge and, after it stopped, of the expressed secretion from the prostate and seminal vesicles.

Passage of a sound, indulgence in alcoholic drinks and intercourse with a condom were additional tests carried out as a recheck in the majority of our cases.

*Pyelitis.*—A small series of upper urinary tract infections have been treated. The results, while not conclusive, have been striking. The following case histories are representative.

The study of a larger series has been undertaken and will be reviewed in a subsequent communication.

Case 1241459.—Male, aged 60; diagnosis—cystitis. Patient had been sick for one week, suffering with frequent, painful urination. No improvement with urinary antiseptics prescribed previously; brought him to Cook County Hospital for relief. Temperature 99; pulse 90; respiration 20. Urine contained pus cells +++ and albumin +. A urine culture revealed staphylococcus albus. One capsule of Ambazin was given three times a day and no other medication. The fluid intake was limited to 1500 cc. in twenty-four hours to provide a concentration within the optimum therapeutic range of the drug. His symptoms began to subside on the third day and were gone at the beginning of the second week. The urine at this time showed pus + but culture was sterile. Urine was normal at the third week and patient had not had a recurrence since.

Case.—Female, aged 37; diagnosis—pyelitis of pregnancy. Patient was seen in private practice, complaining of extremely frequent and painful urination. The temperature was 102°. The urine showed pus ++++ and a pure culture of *Bacillus coli*. She was given one capsule of Ambazin, three times daily. Her recovery and relief of symptoms was rapid. On the fifth day the temperature was normal, urine negative and symptoms completely absent. She has since delivered without recurrence of symptoms.

Case 1240409.—Female, aged 32; diagnosis—pyelocystitis. She had been under treatment for three weeks before entering the Cook County Hospital, taking "kidney medicine," the character of which was unknown. During her stay in the hospital her temperature ranged from 101° to 104° in spite of routine medication. She was given heavy doses of alkalies the first five days without improvement in symptoms or reduction of fever. Sodium acid phosphate and urotropin were then given,

fifteen grains, three times daily, following which she made apparent improvement, only to relapse. Ambazin, one capsule three times daily, was started and the improvement that followed was immediate. The temperature dropped quickly and within five days was normal. Urethral catheterization on the seventh day withdrew urine sterile on cultures. The patient has been under observation for two months and no recurrence has taken place.

*Resumé.*—A total of 100 cases were studied. Ninety-seven were lower urinary tract infections. Of this group fourteen failed to respond. However, seven of these cases that failed received injections or irrigations of the drug in suspension. Twenty were eliminated for failure to attend for four consecutive weeks. Forty-eight were clinically cured and fifteen free from symptoms and organisms at time of failure to report for final check-up. Cases on standard treatment averaged 7.5 weeks to end of observation and 4.2 weeks to freedom from organisms and disappearance of discharge. Three cases of upper urinary tract infection responded favorably.

#### CONCLUSIONS

1. A new urinary antiseptic, Ambazin, has been subjected to a preliminary series of clinical studies which substantiate the favorable laboratory findings.

2. Although not a specific it is a reinforcing agent of value in the treatment of gonorrhea.

3. A forward step has been made in the therapeutic use of the dye by:

- (a) Eliminating the undesirable staining qualities.

- (b) Offering a high bactericidal and bacteriostatic action.

- (c) An absence of toxicity and irritating action on the urinary tract.

- (d) Well tolerated by the gastro-intestinal tract.

- (e) An unusually low incidence of secondary complications.

- (f) A tendency to shorten the course of treatment.

4. Its use in upper urinary infections has already given satisfactory results and its further study in genito-urinary conditions is warranted.

#### REFERENCES

1. Davis, Edwin: Urinary Antisepsis—The Clinical Application of Experimental Data. Minn. Med.: 151-155, April, 1926.
2. Ball, W. G.: Anatomical Factors in Urinary Infections. Proc. Roy. Soc. Med. Sect. Urol. 20: 1-14, January, 1927.



3. Boyd, Montague: Urinary Infections and Urinary Antiseptics. South. M. J. 22: 719-722, August, 1929.

4. Walther, H. W. E.: Clinical Application of Urinary Antiseptics. South. M. J. 22: 161-166, February, 1929.

5. Harlow, F. W., and Afifi, M.: Diagnosis and Treatment of Bilharziasis. Urol. and Cutan. Rev. 34: 575-578, September, 1930.

6. Mekie, E. C.: Parasitic Infection of Urinary Tract. Edinburgh M. J. 33: 708-719, December, 1926.

7. Ferirer, Muder and Leonard: Development of Drug Fast Characteristics in Vitro-Importance of Drug Rotation. J. Urol. 16: 97-116, August, 1926.

8. Pearlman, S., and Sauer, H. von: Treatment by Means of Modification of Acid Base Equilibrium. Muenchn. Med. Wchnschr. 76: 1793-1795, October 25, 1929.

9. Brasch and Bumpus: Clinical Results with Intravenous Chemotherapy in Urinary Infections. J. Urol. 15: 341-49, April, 1926.

10. Robertson, Carrick: Quoted by Brasch and Bumpus.

### (A)—CHEMISTRY

Chemically this compound is the Sodium salt of Diphenyl-disazo-ethoxyaminophenol-aminobenzoic acid plus Hydroxyquinoline sulphate. It is one of a series of 104 compounds that were synthesized and investigated bacteriologically and pharmacologically.

### B—BACTERIOLOGY

#### I—Bactericidal:

##### 1—Staphylococcus pyogenes aureus (Reddish Method)

TABLE A

Dilution	5 min.	10 min.	15 min
1-100	—	—	—
1-300	—	—	—
1-500	—	—	—
1-1000	—	—	—
1-1500	—	—	—
1-2000	+	—	—
1-3000	+	+	+
1-5000	+	+	+
1-6000	+	+	+

##### 2—Bacillus Coli (Reddish Method)

TABLE B

Dilution	5 min.	10 min.	15 min
1-100	—	—	—
1-500	—	—	—
1-1000	—	—	—
1-1500	—	—	—
1-2000	+	—	—

Interpretation: Ambazin is bactericidal to Staphylococcus pyogenes aureus and to Bacillus Coli in 10 and 15 minutes in a dilution of 1:2000 (Reddish Test).

#### II—Bacteriostatic:

##### 1—Staphylococcus pyogenes aureus

TABLE C

Dilution	1-1000	1-2000	1-4000	1-8000	1-10,000	1-15,000
	—	—	—	—	—	—
Dilution	1-20,000	1-30,000	1-50,000	1-60,000	1-75,000	1-100,000
	—	—	—	—	—	—
Dilution	1-150,000	1-200,000	1-300,000	1-400,000	1-500,000	
	—	—	+	+	+	

##### 2—Bacillus Coli

TABLE D

Dilution	1-1000	1-2000	1-3000	1-5000	1-10,000	1-15,000
	—	—	—	—	—	+
Dilution	1-20,000	1-30,000	1-40,000			
	+	+	+			

Interpretation: Ambazin prevents the growth of Staphylococcus pyogenes aureus in a dilution of 1:200,000 and of the Bacillus Coli in a dilution of 1:10,000.

III—Bacteriostatic tests carried out in the presence of nutrient broth alone and in mixture with 20 per cent. normal horse serum and 20 per cent. filtered human urine.

Procedure: A stock solution of 1:100 of the compound was prepared. This solution was diluted with sterile distilled water and further diluted with the nutrient broth to the final dilution. Tests were carried out with the broth alone and the broth containing either 20 per cent. normal horse serum or 20 per cent. filtered human urine. The following organisms were added to separate lots of the broth or the broth mixtures and used as the test micro-organisms, staphylococcus aureus, streptococcus viridans, pneumococcus, B. Coli, and B. Diphtheroid. One cc. of a 24 hour broth culture of the above micro-organisms was added to each 100 cc. of the nutrient broth or nutrient broth plus horse serum or urine mixture.

All tests were conducted in test tubes and the compound so diluted that when 1 cc. was placed in each tube and 9 cc. of the broth suspension of the micro-organism added, the final dilution was the desired one, as recorded in the tests outlined below. All tests were incubated for five days at 37.5° C. and the three highest dilutions showing no growth subcultured. The subcultures were incubated for 48 hours and the results recorded.

##### Micro-organism—Staphylococcus pyogenes aureus

TABLE E

	1-50,000	1-100,000	1-125,000	1-150,000	1-200,000	1-250,000
Nutrient broth, pH 6.8	—	—	—	—	+	+
Nutrient broth plus 20% normal horse serum, pH 6.8	—	—	—	—	+	+
Nutrient broth plus 20% normal urine, pH 6.6	—	—	—	—	+	+
— indicates no growth. + indicates growth.						

##### Micro-organism—Streptococcus viridans

TABLE F

	1-50,000	1-100,000	1-125,000	1-150,000	1-200,000	1-250,000
Nutrient broth, pH 6.8	—	—	—	—	+	+
Nutrient broth plus 20% normal horse serum, pH 6.8	—	—	—	—	+	+
Nutrient broth plus 20% normal urine, pH 6.6	—	—	—	—	+	+

Micro-organism—Pneumococcus

TABLE G

	1- 50,000	1- 100,000	1- 125,000	1- 150,000	1- 200,000	1- 250,000
Nutrient broth, pH 6.8 .....	—	—	—	—	+	+
Nutrient broth plus 20% normal horse ser- um, pH 6.8..	—	—	—	—	+	+
Nutrient broth plus 20% normal urine, pH 6.6 .....	—	—	—	—	+	+

Micro-organism—Bacillus Coli

TABLE H

	1- 1000	1- 3000	1- 5000	1- 8000	1- 10,000	1- 12,000	1- 15,000
Nutrient broth, pH 6.8....	—	—	—	—	+	+	+
Nutrient broth plus 20% normal horse ser- um, pH 6.8..	—	—	—	—	+	+	+
Nutrient broth plus 20% normal urine, pH 6.6 .....	—	—	—	—	+	+	+

Micro-organism—B. Diphtheroid

TABLE I

	1- 1000	1- 3000	1- 5000	1- 8000	1- 10,000	1- 12,000	1- 15,000
Nutrient broth, pH 6.8....	—	—	—	—	—	+	+
Nutrient broth plus 20% normal horse ser- um, pH 6.8..	—	—	—	—	—	+	+
Nutrient broth plus 20% normal urine, pH 6.6 .....	—	—	—	—	—	+	+

Interpretation: In nutrient broth alone (pH 6.8) and in nutrient broth plus 20 per cent. normal horse serum (pH 6.8) and in nutrient broth plus 20 per cent. normal urine (pH 6.6) Ambazin was found bacteriostatic to—

- Staph. pyog. aureus in dilution of 1:150,000.
- Streptococcus viridans dilution of 1:150,000.
- Pneumococcus in a dilution of 1:150,000.
- Bacillus Coli in a dilution of 1:8,000.
- Bacillus Diphtheroid in a dilution of 1:10,000.

IV—Bacteriology of urine after medication with Ambazin. This compound was given to a normal not infected person in a dosage of 0.2 grams three times a day. After 48 hours (or six doses) the urine was found sterile. Administration of the same dosage was continued for 5 days (16 doses). The urine showed the following bacteriological picture.

TABLE K

	5 min.	10 min.	15 min.
Staphylococcus aureus.....	no growth	no growth	no growth
Urine 5 days not diluted..	growth	growth	growth
1-5 .....	growth	growth	growth
1-10 .....	growth	growth	growth

TABLE L

	5 min.	10 min.	15 min.
Bacillus Coli .....	growth	growth	growth
Urine 5 days not diluted..	growth	growth	growth
1-5 .....	growth	growth	growth
1-10 .....	growth	growth	growth

Medication was continued for another 24 hours or until 20 doses each 0.2 grams had been given. The bacteriostatic findings are recorded in the following table:

TABLE M

	Not diluted	1-1	1-2	1-5	1-10	Culture Control
Urine 6 days	—	—	—	—	—	+
Staphylococcus aureus .....	—	—	—	—	—	+
Bacillus Coli.....	—	—	—	—	—	+

—indicates no growth; + indicates growth.

Incubated 5 days at 37.5° C. Normal urine not diluted from an individual who had not received the compound showed growth.

Interpretation: Administration of Ambazin to a normal not infected person in three daily doses of 0.2 grams each causes the urine to be sterile after 48 hours (6 doses). Administration for 5 days (16 doses) made the urine bactericidal to staphylococcus pyogenes aureus but not to Bacillus Coli.

Administration for 6 days (20 doses) made the urine bacteriostatic to staphylococcus pyogenes aureus and B. Coli in dilutions up to 1:10.

normal not infected person in three daily doses of In these tests the pH value of the urine ranged from 5.2 to 4.8 (normal urine approximately 6.0).

PHARMACOLOGY

The following table represents the toxicity tests on rats (intramuscular injection of the aqueous suspension of Ambazin. "X").

TABLE N

Rat No.	Weight grams	Sex	Dose per kilo.	Amt. in-jected	1 day	2 day	3 day	4 day	Results
1	220	M	0.4	1.76 c.c.	—	—	—	—	Normal 21 days
2	175	M	0.5	1.75 c.c.	—	—	—	—	Normal 21 days
3	200	M	0.6	2.40 c.c.	—	—	—	—	Normal 21 days
4	130	M	0.8	1.04 c.c.	—	—	—	—	Normal 21 days
5	200	M	1.0	2.0	—	D	—	—	Normal 21 days

Result: The M. L. D. was 0.8 grams per kilo. No abscesses formed though slight local swelling occurred in the 0.8 grams dose.

In view of the rather low toxicity of Ambazin on rats it was decided to establish an average dosage of 0.2 grams three times a day for humans. The bacteriological work (see above) and the quite extensive application of this dosage in clinical work seem to justify the selection of this dosage.

(D)—HISTOLOGY

In order to study the effect of Ambazin on the vital organs, such as kidney, liver, spleen, etc., it was decided to put a series of rabbits on an excessive dosage for a prolonged period of time. An amount of 0.6 grams having been established as the daily normal dosage for humans, it will be noted from the table below that Rabbits Nos. 1 and 2 received approximately



ten times this dosage for 40 days and Rabbit No. 5 the same dosage for 46 days. Rabbit No. 3 received ten times this dosage for 26 days and 20 times the dosage for 14 days (proportional to body weight) while Rabbits Nos. 4 and 6 received ten times this dosage for 26 days and twenty times the dosage for 20 days. The time factor as translated to humans would approximately be 400 days or approximately 1.1 year.

The administration to the rabbits was done orally in the form of an aqueous suspension of the compound.

TABLE O

Rabbit No.	Wgt. grams	Dose per per kilo. 0.040	Route per admin.	Days administered	Total am't. compound administered
1.	2550	twice daily 0.040	per oral	40 days	8.160 grams
2.	2760	twice daily	per-oral	40 days	8.832 grams
3.	2400	double dose	per oral	26-0.040 14-0.080	10.368 grams
4.	2900	double dose 0.040	per oral	26-0.040 20-0.080	15.312 grams
5.	2550	twice daily	per oral	46 days	9.384 grams
6.	2600	double dose	per oral	26-0.040 20-0.080	13.728 grams

Results: Rabbits Nos. 1, 2 and 3 were destroyed on the 41st day and Rabbits Nos. 4, 5 and 6 on the 46th day. No staining of the tissues was noted. The stomach, intestines, kidney and urinary bladder were especially studied, but no macroscopical changes could be observed. The other organs, such as lungs, liver and spleen, were apparently normal.

The microscopical findings of the liver, spleen, kidney and lung were:

#### Rabbit No. 1

*Liver*—The H and E stained section shows no evidence of any histopathologic changes. The liver cells in the peri-portal region and around the central veins appear to be normal. The blood vessels contain few erythrocytes but not in any excessive amount. The bile ducts also present a normal appearance.

*Spleen*—There is no evidence in the H and E stained section of any pathologic changes. Most of the malpighian follicles are intact although some of them lost their contour. There is no increase in the interstitial tissue. Hemosiderin is present in normal amount except for one portion of the section where it seems to be somewhat excessive.

*Kidney*—A section stained with H and E presents no evidence of any pathologic changes. The glomeruli with the vascular tuft present a normal picture. There is no infiltration into the capsular space. The endothelial lining of the capsule is intact, and presents a normal appearance. The epithelial linings of the convoluted and conducting tubules show no degeneration and no cloudy swelling. The luminae of the tubules do not show any casts.

*Lung*—The H and E stained section shows no evidence of pathology by microscopic examination. The alveolar spaces are clear and show no exudative material. The interstitial tissue as well as the bronchioles likewise show no pathologic evidences. The vessels contain moderate amount of erythrocytes.

#### Rabbit No. 2

The H and E stained sections of the *Liver, Spleen, Kidney* and *Lung* present similar microscopical picture to the sections in Rabbit No. 1.

#### Rabbit No. 3

*Liver, Spleen* and *Lung* sections present microscopical picture similar to those described in Rabbits Nos. 1 and 2 with the exception of slight increase in number of erythrocytes.

*Kidney*—The H and E stained sections show slight difference from the picture shown in the Rabbits Nos. 1 and 2. Beside the very moderate increase in the number of erythrocytes there is moderate degeneration in the epithelium lining of the convoluted tubules. Also there is a little infiltration of degenerative material in the intercapsular spaces and the luminae of the tubules.

Bladder, intestines and stomach show no histo-pathologic changes in the H and E sections.

#### Rabbit No. 4

*Liver, Spleen, Kidney* and *Lung* sections stained with H and E present similar picture as noticed in Rabbit No. 1.

#### Rabbits Nos. 5 and 6

The H and E stained sections of *Liver, Spleen, Kidney* and *Lung* show the same microscopical changes as described in No. 1.

*Interpretation:* The microscopical examination of the various sections from the six rabbits shows no evidence of any pathologic changes. These hematoxylin and eosin stained sections included the liver, spleen, kidneys and lungs. The kidney section from Rabbit No. 3 presented slight changes in the glomeruli and the epithelial lining of the tubules but such changes are observed in the kidneys of stock rabbits which have not received any medication.

#### SUMMARIZATION

The foregoing is a report on the chemistry, bacteriology, pharmacology and histology on a new genito-urinary antiseptic together with a preliminary report on its clinical performance in 100 cases of lower and upper urinary infections.

#### PHRENICO-EXERESIS IN THE TREATMENT OF PULMONARY TUBERCULOSIS\*

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The usual accepted treatment for pulmonary tuberculosis consists of rest in bed, hygiene, nutritious food, sunshine and artificial pneumothorax. Phrenico-exeresis, as one form of treatment in selected cases, was introduced at Oak

\*Read before the Chicago Roentgen Society, April 14, 1932.

Forest Tuberculosis Hospital, three years ago.<sup>1</sup> This preliminary report deals only with the results obtained during the past two years. A more complete analysis for publication is being prepared at this time.

Phrenico-exeresis was introduced by Steurtz,<sup>2</sup> in 1911, who cut the phrenic nerve to control basal tuberculosis. In 1920, Goetze<sup>3</sup> suggested temporary paralysis of the diaphragm by crushing the nerve, and in 1922, Felix<sup>4</sup> introduced exeresis or avulsion as it is performed today.

Our material consists of 120 cases of pulmonary tuberculosis in which this operation was performed. The following classes of patients were selected for this procedure:

First, unilateral cases that have taken the usual rest "cure" for about four to six months without definite benefit.

Second, as a preliminary step before artificial pneumothorax because not as much air is needed and therefore the time between refills is lengthened, the subsequent pleural effusions are smaller and occur less often, and finally when the lung is allowed to re-expand there is less chance for tearing open healed cavities.

Third, in those cases in which there is cavity formation of the following types, soft walled, honey-combed cavities located any place in the lung and persistent cavities that do not disappear under ordinary management. The purpose of phrenico-exeresis in such cases is to relieve tension, thus permitting the cavity to become smaller or closed.

Fourth, to control pulmonary hemorrhage where pneumothorax was attempted and failed.

Fifth, as a safeguard for patients who are unable to receive proper pneumothorax care after leaving the hospital because of transient residence, occupations, or any other inability to receive gas refills.

Sixth, in cases where pneumothorax is unsuccessful because of the presence of pleural adhesions and inability to collapse the lung.

Seventh, as a preliminary step before thoracoplasty to test the response of the better lung.

We do not perform the operation in the presence of undrained empyema because fluid is non-collapsible. In acute progressive tuberculous disease and in tuberculosis with complications such as intestinal tuberculosis or laryngeal tuberculosis, we feel that phrenico-exeresis is contra-

indicated because in such cases the process is already very far advanced. Cases with thick walled cavities are not suitable because they cannot be collapsed by phrenico-exeresis. In bilateral pulmonary tuberculosis which is very active and progressive, except for the unusual case in which a bilateral phrenico-exeresis is deemed advisable, we also feel that this procedure is contraindicated.

The technique employed consists of the following: A site is selected where the cosmetic changes will not be prominent. There is usually a natural small wrinkle transversely two finger breadths above the clavicle. Local anesthesia is employed, infiltration of the skin, subcutaneous tissue and deeper layers is accomplished with one per cent. novocain solution. The incision is made to coincide with the transverse wrinkle described above, beginning just at the posterior border of the sternocleidomastoid muscle and running backward about one and one-half inches (4 cm.).

The skin, superficial fatty layer, and platysma muscle are incised and the small vessels of the skin are clamped. The artery forceps are permitted to remain until the operation is completed in order to provide hemostasis without the use of ligatures in the superficial layers. The rest of the operation is performed by blunt dissection, with blunt nosed Mayo scissors. (Fig. 1.)

The external jugular vein is located and is retracted to one side, preferably anteriorly. The

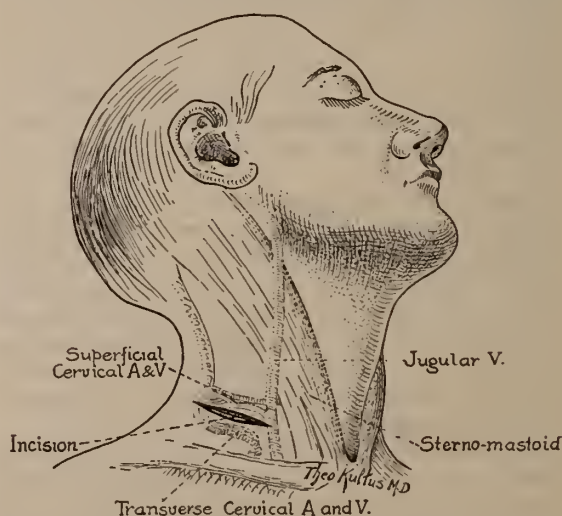


Fig. 1. Shows site of incision through skin, superficial fat and platysma muscle and indicates relations of deeper structures.



finger is now introduced into the wound, the rounded belly of the scalenus anticus muscle is identified and the dissection is then carried down directly to the surface of this muscle. The phrenic nerve will then be easily found lying on this muscle.

Once safely oriented, the retractors are so introduced that this muscle is now firmly held in

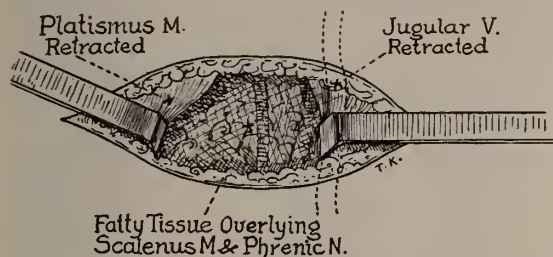


Fig. 2. Illustrates pad of fat overlying phrenic nerve. This fat should never be excised but is best separated by blunt dissection.

place. The fascia is incised and the opening enlarged by spreading the points of the instrument. A pad of fat will always be found overlying the muscle. This fat should never be incised but is separated by blunt dissection only and the anterior scalene is exposed. (Fig. 2.)

If the anatomy is normal, the nerve will be seen at once crossing the surface of the muscle diagonally from without inward, covered by a thin transparent layer of fascia. However, this is not always the case, as the nerve may be higher up, descending along the anterior border or along the posterior margin of the muscle to cross lower down. The former variation is the more common.

After the nerve is found, it is picked up by a hook and is identified by using a weak faradic

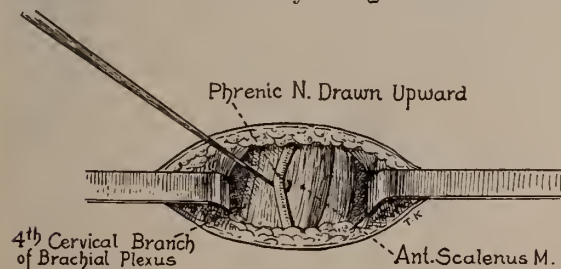


Fig. 3. Illustrates exposure and seizure of phrenic nerve for electrical stimulation. This is very important in order to avoid confusion with the 4th cervical branch of the brachial plexus which lies alongside the phrenic nerve.

current. The negative contact is put on any part of the body and the positive electrode on the nerve. The nerve is then stimulated and the diaphragmatic contraction or twitch of the ab-

dominal wall is observed or felt just below the costal margin; a drop or two of novocain is then injected into the nerve before clamping the structure with a hemostat. (Fig. 3.)

The pupils are now observed in order to determine if they are unequal and if drooping of the eyelid occurs, as would be the case if the sympathetic nerve is confused with the phrenic. This is a second safeguard in the identification of the phrenic nerve.

If a temporary paralysis of the diaphragm is desired, the nerve is crushed with a hemostat for about one-half to one inch. We do not believe that the above procedure is desirable because the nerve may regenerate in from one to eight months and paralysis of such duration is usually insufficient. If a permanent result is sought, the nerve is fully freed from the muscle surface and clamped with a large hemostat. It is then severed above the hemostat and the distal end is subjected to steady, firm traction and rolling on the hemostat, as illustrated. (Fig. 4.)

The attachment of the phrenic nerve to the diaphragm will often give way and the entire nerve may thus be removed. In some cases this does not occur so readily or is impossible. In

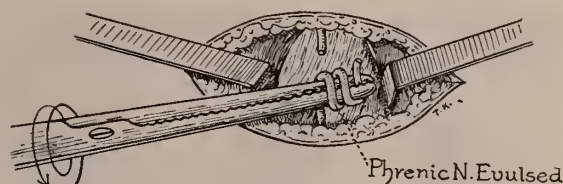


Fig. 4. Shows method for avulsion of nerve after identification.

such instances as the latter, about ten to twelve centimeters of the nerve is avulsed. We feel that this is enough in the majority of cases to insure breaking of the accessory connections and we feel safe in cutting the nerve at this point.

Occasionally following the avulsion there is a welling up of blood in the operative field, from the point where the nerve was extracted. This is usually caused by the tearing of the transverse cervical artery or vein. This hemorrhage can be stopped readily by a little pressure with gauze packed into the wound for a few minutes. When the wound is dry, it is closed by subcuticular continuous suture of silk without drainage. Only rarely are ligatures required. A small piece of gauze dipped in collodion is placed over the wound and this is covered by a piece of dry

gauze held in place by adhesive plaster. Sutures are removed at the end of five days.

Certain post-operative complications occur, such as Honer's Syndrome with drooping of the eyelids, pinpoint pupils and slight flush of the

from the transverse cervical vein or artery or superficial cervical vessels occurred in five instances but was easily controlled.

*Summary.*—During the past two years, phrenico-exeresis was done in 120 selected cases

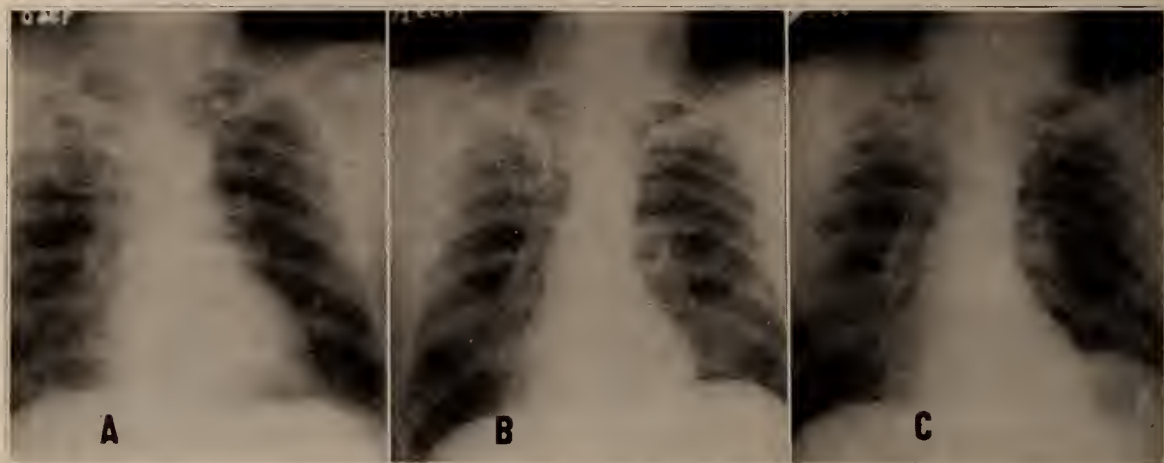


Fig. 5. White male, age 52, far advanced pulmonary tuberculosis, sputum positive. X-ray findings indicate cavities in right upper lobe, but there were practically no physical findings in this area. The physical findings were all in the apex of the left lower lobe. A left phrenico-exeresis was performed. A shows appearance of chest at the time of admission 8-7-30. B shows paralysis of left diaphragm, compression of left lung,

disappearance of parenchymal infiltration in left lung and partial obliteration of cavities in right upper lobe. This examination was made 5-2-31. C illustrates appearance of chest 2-10-32. Paralysis of left diaphragm persists, left lung roentgenologically and clinically negative, and the cavities in the right upper lobe are obliterated and the site densely fibrosed. At this time a series of sputum exams were all negative.

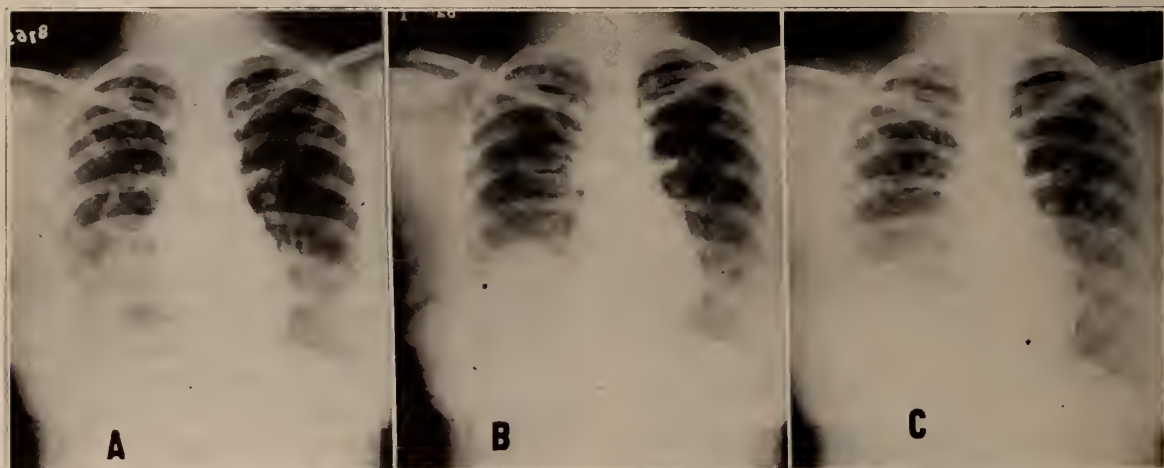


Fig. 6. White female, aged 24, far advanced pulmonary tuberculosis, positive sputum, physical findings and X-ray examination revealed a far advanced process on both sides. There is a large cavity in the right middle lung field. A shows appearance of chest on 10-8-31. Phrenico-exeresis was done 11-16-31 and eight days later (11-24-31) the second film B was made. The

right diaphragm is high and paralyzed, the right lung is compressed, and the cavity is greatly compressed. C is a film of the chest made 4-11-32 or about six months after the phrenico-exeresis. The cavity is completely obliterated, the diaphragm remains high and the lung is compressed. At this time the sputum was negative, the patient had gained 67 pounds and clinically the process was arrested.

affected side of the face. This occurred once. Gas pains and indigestion lasting from two days to a week, occurred frequently in phrenico-exeresis performed on the left side. Hemorrhage

of pulmonary tuberculosis. 67.5% of these cases showed definite improvement as evidenced by the sputum becoming negative, normal temperature, gain in weight and improvement in physical



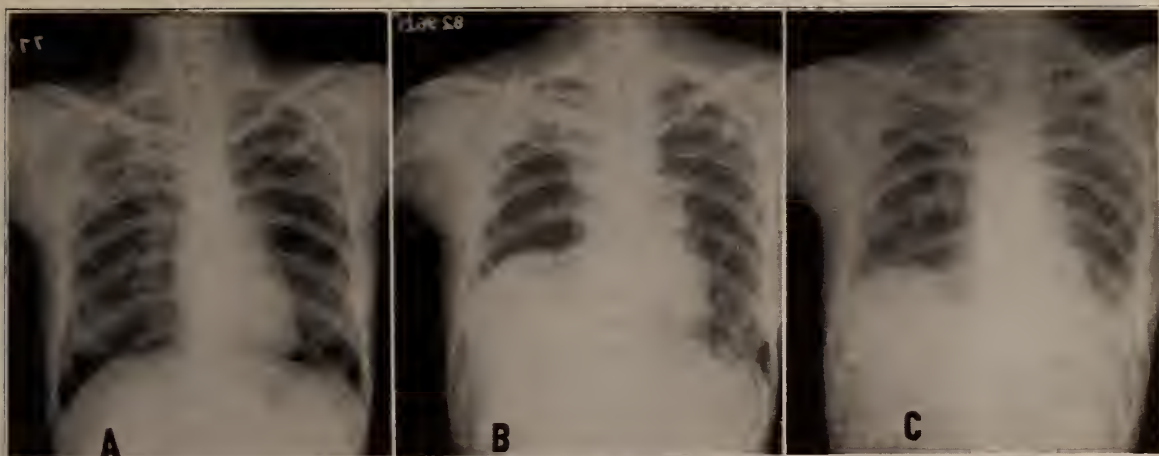


Fig. 7. White female, age 23, far advanced, active, bilateral pulmonary tuberculosis. A shows the appearance of the chest on admission 2-9-31. A large infiltration is present in the left apex and a large cavity is present in the right apex. B illustrates the appearance of the chest on 12-14-31. The right diaphragm is high and paralyzed, the right lung is compressed, the heart

is displaced slightly to the left and the cavity is completely obliterated and fibrosed. It will be noted that the infiltration in the left apex is disappearing also. C shows the appearance of the chest on 4-11-32. Only the fibrosis in both upper lobes remains. The sputum was persistently negative, the temperature normal, there was a marked gain in weight and clinically the case was considered to be arrested.

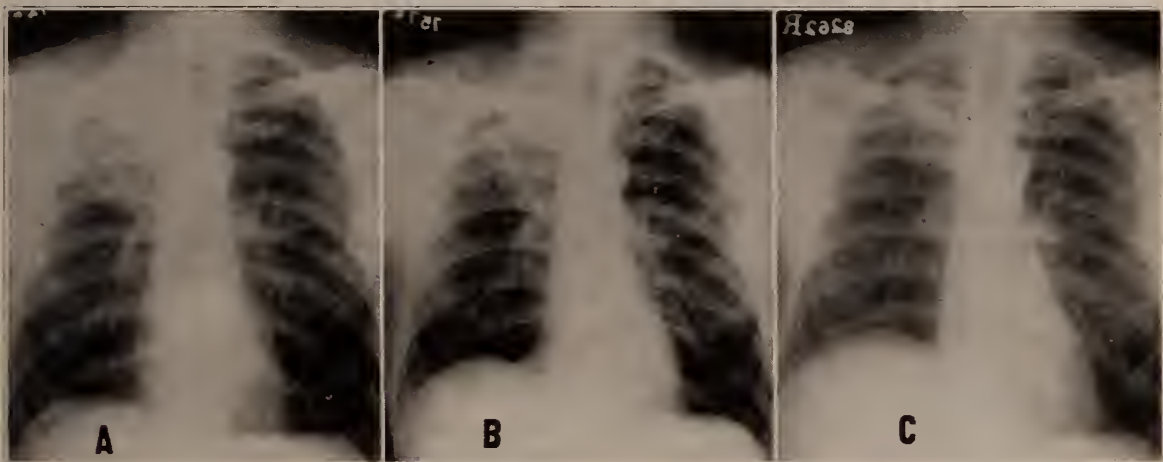


Fig. 8. White male, age 41, positive sputum. the clinical and X-ray findings were those of an advanced right upper lobe tuberculosis with multiple small cavities and marked soft parenchymal infiltration. A shows appearance of chest at the time of admission 10-15-30. B. illustrates the X-ray appearance of the chest about two months after the phrenicoexeresis. There is the characteristic elevation and paralysis of the right dia-

phragm and the displacement of the mediastinal structures. Much dense fibrosis is present in the right apex and the cavities can no longer be visualized. C. is the appearance of the chest on 11-24-31. There is complete arrest of all activity, nothing but dense fibrosis remains at the site of the cavitation and infiltration. The sputum was negative, temperature was normal, the patient has gained more than twenty pounds, and the condition is clinically arrested.

findings; 62.5% became "negative sputum" after phrenico-exeresis; 39 or 32.5% remained "positive sputum." Of these 39 cases, 18 were subsequently given artificial pneumothorax and 6 or 33 $\frac{1}{3}$ % of these gas cases were discontinued because of adhesions, pleural effusions, etc. Of the 120 cases discussed in this paper and followed up, 18 or 15% are now dead from causes enumerated in the appended tables. (Tables 1 and 2.) No mortality or morbidity can be attributed

directly to a phrenico exeresis. A complete analysis of the cases studied with histories, clinical course etc., will follow in a subsequent publication.

*Conclusions.*—From the results obtained in a series of 120 selected cases of pulmonary tuberculosis, we feel that phrenico-exeresis should precede all other surgical procedures in the treatment of pulmonary tuberculosis. A series of roentgenograms of illustrative cases showing the

types of cases selected for treatment and the results obtained is included. Figs. 5-8.

TABLE 1

SPUTUM REPORT FOLLOWING PHRENICO-EXERESIS			
Positive becoming Negative.....	75	or	62.5%
Positive remaining Positive.....	39	or	32.5%
Negative remaining Negative.....	6	or	5.0%
	120		100.0%

Tabulation of cases treated to illustrate effect of phrenico-exeresis on the "positive sputum" cases.

## BIBLIOGRAPHY

1. Head, Jerome R. and Schlack, O. C.: The American Review of Tuberculosis, Vol. XXIV, No. 1, July, 1931, pp. 42-45.

2. Steurtz: Experimenteller Beitrag zur Zwerchfellbewegung nach einseitiger Phrenicusdurchtrennung. Deutsche Med. Wchnschr, 1912, XXXVIII, 897-900.

3. Goetze, O.: Temporäre Phrenicusblockade Zentrabl, f. Chir. Leipz, 1920, XLVII, 1290-1292.

Die radikale Phrenikotomie als Selbständiger Therapeutischer Eingriff bei der Lungentuberkulose, 46 Tag d. Deut. Gesellsch, f. Chir. In:—Arch. f. klin chir., 121, 1922, p. 224

4. Felix, Willy: Die radikale Phrenikotomie als Selbständiger Therapeutischer Eingriff bei der Lungentuberkulose, 46 Tag d. Deut. Gesellsch, f. Chir. In:—Arch. f. klin chir., 121, 1922, p. 227.

Anatomische, experimentellen und klinische Untersuchungen über der Phrenicus und über die zwerchfellinnervation, Deut. Zeitsch, f. chir., 171—1922.

TABLE 2

## MORTALITY RECORD

Number of Patients 120. Number of Deaths 18. Percentage of Deaths 15%.

## NO DEATHS OCCURRED THAT CAN BE ATTRIBUTED DIRECTLY

## TO THE OPERATION

## Analysis of Deaths

No. of Cases:	Per Cent
6. Following Phrenico-exeresis and thoracoplasty—the Phrenico-exeresis being in each case done in preparation for thoracoplasty .....	33%
2. Following Phrenico-exeresis and a subsequent operation on the recurrent laryngeal nerve for T. B. Throat....	11%
3. Artificial pneumothorax attempted unsuccessfully. Phrenico-exeresis was then done.....	17%
2. Phrenico-exeresis of left side—followed subsequently by a spontaneous pneumothorax on same side.....	11%
1. Phrenico-exeresis in unilateral case—patient had a tubercular hip .....	5.5%
1. Phrenico-exeresis in unilateral case—patient died 5 months later (this was a colored man).....	5.5%
1. Phrenico-exeresis (bilateral case). An old patient with reactivation and operation was done at patient's request .....	5.5%
1. Phrenico-exeresis—resulting in Horner's Syndrome—subsequently given Artificial Pneumothorax. Died of air embolism .....	5.5%
1. Died after leaving the Institution, one year later, cause unknown .....	5.5%

Tabulation of deaths in this series of cases. It will be noted that no deaths are directly or indirectly attributed to the phrenico-exeresis, but that death was due to continued advance of the tuberculous process in spite of phrenico-exeresis, thoracoplasty or both.

## THE SCHILLING COUNT AS AN AID IN GENERAL SURGERY\*

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The purpose of this article will be to stress the value of the Schilling hemogram in general surgery as an aid in diagnosis, prognosis, and clinical observation. My experience with routine hematological observation of surgical cases has shown ample justification for the extra time, expense and effort involved. I will attempt to show in the following paragraphs the type of reaction found in the blood in clean and infected surgical cases and explain the interpretation of the leukocytic changes.

Credit for the propounding of the principle of

observing the immaturity of white cells by the shape of the nucleus goes to Arneth,<sup>1</sup> who first brought forward his scheme in 1892 after Erlich had perfected the blood stain which made the differential count possible. Because of the impracticability of Arneth's classification it was never popularized until Schilling<sup>2</sup> in 1911 simplified the classification into what is now known as the Schilling differential count. Isolated investigators, among whom may be mentioned Retznikoff,<sup>3</sup> Weiss<sup>4</sup> and Boies<sup>5</sup> have written articles which show the value of the count in their types of work, i. e., internal medicine and eye, ear, nose and throat specialties. The general surgeons have not utilized the new method very widely.

Arneth observed an increase in the number of immature leukocytes in the presence of infection with a shift back to the more mature cells as in-

\*Read before Rock Island County Medical Society, February, 1932. Read before St. Lukes Hospital Staff, Davenport, Iowa, December, 1931.



fection was overcome. The polymorphonuclear neutrophils are considered to be the mature type in the Schilling classification, ignoring the many subdivisions of Arneth, and are called segmented leukocytes. Forms which have not quite reached maturity have no segmentations in the nucleus, the nuclei often assuming the shape of a bent rod and are known as the staff forms. The next cells in the scale of immaturity are slightly larger than the staff forms and have a fainter staining protoplasm with a nucleus which is slightly indented but with more of a tendency to be round and fainter staining than the staff forms; these are called juveniles. The next subdivision in the Schilling count is the typical myelocyte. The myelocytes are normally absent from the peripheral blood. Juveniles are rarely present up to as high as one-half of one per cent.; the staff forms occur normally up to five per cent. The remainder of the polymorphonuclear neutrophils are made up of unsegmented forms. The usual classification of the remainder of the white count into basophiles, eosinophils, lymphocytes and large mononuclears is also made. The total white count numerically is not so important as the simple statement of increased, normal or decreased to be taken into consideration in the interpretation of the hemogram.

A typical normal hemogram with limits of variation would appear as in Table 1.

TABLE 1.

Total Count	Bas.	Eos.	Myelo.	Juv.	Staff	Seg.	Lymph.	L.M.
6,000 to	5%	3	0	5%	4%	67%	23%	6%
10,000	(0-1)	(2-4)		(0-1)	(3-5)	(54-72)	(21-35)	(4-8)

If we should place the immature cells on a horizontal line with the immature towards the left and mature cells towards the right, we would have an arrangement as shown in Plate 1.

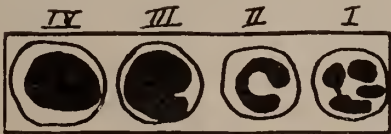


PLATE 1

1. Segmented cell.
2. Staff form.
3. Juvenile type.
4. Myelocyte.

Using Arneth's hypothesis, with this scheme in mind, the presence of infection would mean an increase in the immature forms or shift to

the left; the subsidence of infection a shift back to the multinucleated forms or shift to the right.

One investigator<sup>4</sup> has aptly stated that the differential count is the mirror of the sum total of physiological destruction and replenishment of the blood stream. The destruction may be assumed as being caused by a foreign agent either toxic or bacterial. The replenishment must come from the bone marrow in the case of the granulocytic leukocytes as shown by Florence Sabin.<sup>6</sup> According to her work the classes of immature granulocytes exist in the bone marrow in fairly constant levels starting with the myeloblast and passing up through more mature forms such as myelocyte A, B and C, the metamyelocyte and mature leukocytes. Only a small quantity of mature leukocytes are present in the bone marrow in amount sufficient to take care of the normal physiological requirements of the blood stream. In the presence of severe infection the reserve store is insufficient to supply the demand due to increased destruction. As a result, when such a strong stimulus occurs, immature cells may be thrown into the blood stream in order to meet the demand; because there is insufficient time for complete maturation. Obviously, the greater the demand and less adequate the bone marrow, the more immature the cells thrown into the blood stream will be; and we observe the shifting to the left from staff forms to juveniles and even to the appearance of myelocytes in severe infections. With this mechanism in mind we can clearly see that serial differential counts taken daily or even several times daily in closely watching the progress of a critical infection will indicate this shifting into immature cells with an increase in staff, juveniles, myelocytes where the prognosis becomes worse; and reversion back through these various steps to the mature forms as recovery occurs.

In addition to the granulocytic system, the Schilling hemogram takes into consideration the lymphocytic and the reticulo-endothelial systems in the lymphocyte count and the large mononuclear count. A definite biological chain of events occurs in these systems in the presence of a toxic or infective agent. Schilling speaks of the initial stage of granulocytic reaction as the combat phase. With the drop in the number of immature cells the monocytic system is stimulated, as evidenced by a transitory rise of mono-

nuclear cells, along with the return of the eosinophiles which had been depressed along with the monocytes. This transitory monocytosis occurring as the shift to the left falls is called the stage of conquest by Schilling and indicates beginning recovery. Following the short monocytic phase the monocytes drop back to normal and a gradual increase of lymphocytes occurs with the onset of convalescence. Therefore, in the convalescent stage, the immature count has returned to normal, the eosinophiles and monocytes have dropped to normal; and a lymphocytosis is present. In the presence of a chronic infection or in an infection that has not completely

in the preceding paragraphs lies in the interpretation of serial counts made either for diagnosis or for clinical observation of the progress of a case. For the last two years I have been following routinely with serial Schilling counts before and after operation all types of surgical cases both clean and infected. The results of these observations have been published elsewhere,<sup>7</sup> and have been amply sufficient to convince me of the valuable assistance to be gained by this work. Complications can often be predicted twenty-four hours before they are evident to clinical observation. Likewise, in critical surgical cases, where considerable concern may be felt during the first

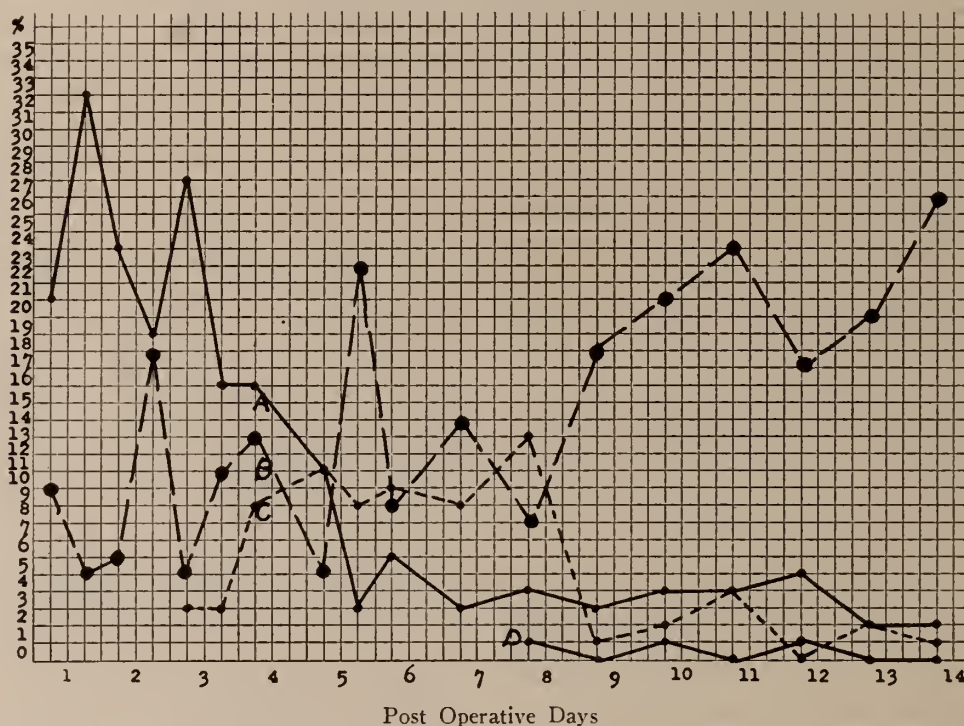


PLATE 2

A—Immature cells.

B—Lymphocytes.

C—Mononuclear cells.

D—Eosinophiles.

Mr. V. DeW. Perforated duodenal ulcer. Closure

of perforation two hours after onset. Uneventful recovery. Graphic chart to show the sequence of leukocytic changes. The point at which the monocyte phase began coincided with marked clinical improvement further emphasized by the marked and consistent fall in immatures.

subsided, the granulocytes may remain slightly high and the monocytes and eosinophiles may remain high with a lymphocytosis, indicating that the process has subsided but still causes chronic irritation. Plate two taken from an actual surgical case illustrates the various phases.

The great value of understanding the mechanism of these leukocytic reactions as brought out

few days, are observed to pass through the normal sequence of hemotological reactions if all is going well.

In order to illustrate these facts I will report several typical cases with serial blood counts taken twice daily till the stage of convalescence has well advanced. It will be observed from a study of the tables that a clean surgi-



cal operation acts as an irritant and produces the sequence of changes much like an infection. The irritation, trauma with resultant decomposition products, and absorption of suture material is responsible. The great value lies in the fact that a complication will upset the orderly progression of cellular changes.

Case two shows the same reactions in another uncomplicated operative case. The shift extends a little more to the left and lasts longer, accompanied by a higher postoperative temperature due to stirring up dormant infection. The clinical course was uncomplicated and the phases follow each other in an orderly manner.

## CASE 1.

Count Number	Date	Time	Total Count	Myelo	Juv	Staff	Seg	Mons	Bas	Eos	Lymph	Shift	Temp	Clinical Course
1	2-10-32	10:00 p. m.	8,400	..	..	1	58	5	..	1	35	1	98	Admitted
2	2-11-32	8:00 a. m.	....	..	..	2	67	1	..	2	28	2	100	Appendectomy
3	2-11-32	8:00 p. m.	....	1	4	1	79	..	..	..	15	6	100.4	Usual Course
4	2-12-32	7:30 a. m.	....	..	2	3	79	1	..	..	15	5	99.6	" "
5	2-12-32	8:00 p. m.	....	..	..	1	79	18	..	..	2	1	100.6	" "
6	2-13-32	8:00 a. m.	17,700	..	..	3	78	12	..	1	6	3	98	" "
7	2-13-32	7:00 p. m.	....	..	..	1	92	3	..	..	4	1	100	" "
8	2-14-32	8:00 a. m.	....	..	..	7	44	4	..	..	45	7	98.6	" "
9	2-14-32	7:00 p. m.	....	..	..	9	61	..	..	..	31	9	100	" "
10	2-15-32	8:30 a. m.	4,700	..	..	2	70	6	..	3	20	2	98.4	" "
11	2-15-32	8:00 p. m.	....	..	..	4	64	2	..	6	24	4	99	" "
12	2-16-32	8:30 a. m.	....	..	..	3	65	..	..	3	29	3	99.2	" "
13	2-17-32	8:00 p. m.	....	..	2	4	59	2	2	4	28	6	99	" "
14	2-19-32	8:00 a. m.	....	1	2	3	63	..	2	7	22	6	98.8	" "
15	2-21-32	8:00 a. m.	....	..	..	2	67	..	..	2	30	..	98.6	" "

Mr. J. J., white, painter. Appendectomy for recurrent appendicitis. Uncomplicated course.

## CASE 2.

Count Number	Date	Time	Myelo	Juv	Staff	Seg	Mons	Eos	Lymph	Shift	Temp	Clinical Course
1	2-4-32	8:00 a. m.	..	..	2	69	6	5	18	2	98	Salpingectomy
2	2-4-32	7:00 p. m.	..	..	8	90	..	..	2	8	101.6	Good condition
3	2-5-32	8:00 a. m.	..	..	5	89	2	..	6	5	99	Mod. drainage
4	2-5-32	7:00 p. m.	..	4	4	77	2	..	9	8	100.6	Usual Course
5	2-6-32	8:00 a. m.	..	4	13	54	22	..	8	17	99	No complications
6	2-6-32	7:00 p. m.	..	1	17	53	17	..	5	18	101.2	" "
7	2-7-32	8:00 a. m.	..	3	13	48	12	..	23	16	100	" "
8	2-8-32	8:00 a. m.	..	3	9	52	8	1	27	12	100.2	Sl. drainage
9	2-9-32	8:00 a. m.	..	2	12	56	..	..	30	14	100.4	Condition good
10	2-10-32	8:00 a. m.	..	4	4	66	4	..	22	8	101	" "
11	2-12-32	8:00 a. m.	..	..	5	76	1	2	16	5	99.6	" "
12	2-14-32	8:00 a. m.	..	..	3	58	4	4	31	3	99	" "
13	2-16-32	8:25 a. m.	..	1	3	55	2	5	34	4	98.6	" "

Mrs. M. M., age 29, divorced, phone operator. Diagnosis: chronic salpingitis. Operation: appendectomy, bilateral salpingectomy. Uncomplicated post operative course.

Case one is a typical example of the normal reactions in an uninfected surgical case. Noteworthy factors are the slight shift to the left seen the second and third day; followed by a monocytosis, as the shift drops, lasting for twenty-four hours. The striking thing is the height of the monocytic percentage, 18%. This reaction is missed completely if frequent counts are not done. With the drop of the monocytes a lymphocytosis occurs which persists in the stage of convalescence. Eosinophiles appear soon after the lymphocytes and rise to a height of seven per cent. The maximum shift corresponds roughly to the highest part of the temperature curve; while the monocytosis, lymphocytosis and eosinophiles parallel the return to normal and improvement in the clinical condition.

Case three represents a deviation from normal. First of all one sees the slight shift to the left on the second and third day expected in an appendectomy but the monocytic phase does not appear. This should put one on the alert for a complication. True to form, two days later, a sore throat appeared and a typical acute follicular tonsillitis with temperature of 102 developed. With subsidence of this, the monocytic phase along with slight increase in eosinophiles appeared, commencing with improvement in the patient's clinical condition. Definite lymphocytosis were still absent when the patient was last examined.

Case four and case five illustrate another type of reaction. Both cases were in the hospital at a time influenza was very prevalent. Both were

## CASE 3.

Count Number	Date	Time	Total Count	Myelo	Juv	Staff	Seg	Mons	Eos	Lymph	Shift	Temp	Clinical Course
1	2-16-32	7:30 p. m.	....	..	..	1	68	..	1	30	1	98	Admitted
2	2-17-32	8:00 a. m.	9,100	..	..	4	55	..	1	40	4	98.8	Appendectomy
3	2-17-32	8:00 p. m.	....	..	..	2	90	..	..	8	2	98.6	Normal course
4	2-18-32	8:00 a. m.	....	1	2	1	88	..	..	8	4	99	Slight cough
5	2-18-32	7:00 p. m.	....	..	5	2	82	..	..	11	7	100.4	" "
6	2-19-32	8:00 a. m.	12,800	..	2	1	86	..	1	10	3	98	" "
7	2-19-32	7:00 p. m.	....	..	8	2	66	..	..	24	10	99.6	" "
8	2-20-32	8:00 a. m.	....	..	1	1	72	..	..	26	2	98.6	" "
9	2-20-32	7:00 p. m.	....	..	2	0	75	1	..	22	2	99	" "
10	2-21-32	8:00 a. m.	....	..	1	2	79	..	1	17	3	97.8	Sore throat
11	2-21-32	7:00 p. m.	....	..	1	1	76	..	1	20	2	98.4	" "
12	2-22-32	8:00 a. m.	10,300	..	4	1	87	..	1	7	5	99.6	" "
13	2-23-32	8:00 a. m.	....	..	1	4	86	..	1	7	5	99.8	" "
14	2-23-32	7:00 p. m.	....	..	4	7	69	..	..	22	11	102	Tonsillitis
15	2-24-32	8:00 a. m.	....	..	1	5	72	..	1	21	6	98.6	Feels better
16	2-24-32	7:00 p. m.	....	4	5	11	63	..	..	17	20	99.4	" "
17	2-25-32	8:00 a. m.	....	3	4	6	71	..	1	15	13	98.8	Throat cleared up
18	2-26-32	10:00 a. m.	....	..	..	7	74	14	..	5	7	98.4	No complaints
19	2-27-32	7:00 a. m.	....	..	..	9	67	12	1	11	9	98.6	Out of bed
20	2-28-32	7:00 a. m.	....	..	..	10	63	4	2	21	10	98.2	Left hospital
21	3-2-32	3:00 p. m.	....	..	..	5	61	7	2	25	5	98.6	At office

Mr. R. H., white, dairy worker, age 23, appendectomy for recurrent appendicitis; interval case. Course complicated by follicular tonsillitis.

## CASE 4.

Count Number	Date	Time	Total Count	Myelo	Juv	Staff	Seg	L.M.	Eos	Bas	Lymph	Shift	Temp	Clinical Course
1	3-3-32	8:00 a. m.	7,400	..	..	6	63	6	1	1	22	6	97	Preop.
2	3-3-32	8:00 p. m.	....	..	..	5	82	7	..	..	7	5	98.8	Appendectomy
3	3-4-32	7:00 a. m.	....	..	1	11	74	9	..	..	5	12	99.8	Usual Course
4	3-4-32	7:00 p. m.	....	..	..	5	74	11	..	1	9	5	101	Bronchitis
5	3-5-32	8:00 a. m.	13,800	..	..	10	69	15	..	1	5	10	99.8	Coughing
6	3-5-32	8:00 p. m.	....	..	..	6	60	24	..	1	10	6	100.4	" "
7	3-6-32	7:00 a. m.	....	..	..	3	71	12	1	1	12	3	98.8	" "
8	3-6-32	7:00 p. m.	10,300	..	..	3	72	19	..	1	5	3	99.4	Normal course
9	3-7-32	8:00 a. m.	....	..	..	7	73	10	1	..	9	7	100.2	except cough
10	3-8-32	7:00 a. m.	....	..	..	3	56	19	2	1	19	3	100.4	Normal course
11	3-12-32	8:30 a. m.	....	..	..	3	61	13	2	..	21	3	100	except cough
12	3-15-32	8:00 a. m.	....	..	..	1	73	7	..	2	7	1	98.6	Slight cough

Mrs. A. W., white, housekeeper, age 62. Diagnosis: recurrent appendicitis, cholelithiasis. Appendectomy performed. Complicated by acute bronchitis and common cold starting third post-operative day.

## CASE 5.

Count Number	Date	Time	Total Count	Myelo	Juv	Staff	Seg	L.M.	Eos	Bas	Lymph	Shift	Temp	Clinical Course
1	2-27-32	7:00 p. m.	....	..	1	6	79	8	..	..	6	7	97.8	Operation
2	2-28-32	8:00 a. m.	....	..	..	1	89	4	..	..	6	1	97.8	Condition good
3	2-28-32	7:00 p. m.	....	..	1	1	83	..	..	..	15	21	100.6	No swelling
4	2-29-32	8:00 a. m.	....	..	1	1	90	8	..	..	..	2	98.8	Circulation gd.
5	2-29-32	7:00 p. m.	....	..	..	1	73	..	1	1	24	1	100.4	Condition good
6	3-1-32	7:15 a. m.	....	..	..	3	78	3	..	..	19	3	97.6	" "
7	3-1-32	7:00 p. m.	....	..	..	5	75	3	..	..	17	5	100.6	" "
8	3-2-32	8:00 a. m.	....	..	..	8	58	4	..	..	30	8	100	Sl. cough
9	3-3-32	8:00 a. m.	....	..	..	3	72	14	1	1	7	3	99.6	Coughing
10	3-3-32	8:00 p. m.	....	..	..	1	74	17	..	1	7	1	100.6	" "
11	3-4-32	8:00 a. m.	8,200	..	..	8	75	9	..	..	8	8	101.4	Influenza
12	3-4-32	8:00 p. m.	....	..	..	8	67	9	..	4	12	8	103	Coughing
13	3-5-32	8:00 a. m.	....	..	..	2	73	10	1	..	14	2	101.4	Expectoration
14	3-5-32	7:00 p. m.	....	..	..	6	67	14	2	2	9	6	102.4	" "
15	3-6-32	7:00 a. m.	....	..	..	6	66	3	..	..	25	6	100.6	" "
16	3-6-32	7:00 p. m.	....	..	..	6	62	16	..	..	16	6	102.4	" "
17	3-7-32	8:00 a. m.	....	..	..	5	60	10	..	..	24	5	98.2	Feels better
18	3-7-32	7:00 p. m.	....	..	..	4	68	10	..	1	17	4	99.8	Less cough
19	3-8-32	8:00 a. m.	....	..	..	7	67	14	2	..	9	7	98	Still cough
20	3-8-32	7:00 p. m.	....	..	..	3	72	8	2	..	15	3	99.2	" "
21	3-9-32	7:00 a. m.	....	..	..	6	49	31	3	1	10	6	98.6	New cast
22	3-10-32	7:00 p. m.	....	..	1	7	58	3	..	..	31	8	99.4	applied with
24	3-14-32	7:00 p. m.	....	..	..	2	75	6	1	..	18	0	99	walking iron
							71	1	1	..	26	2	98.4	Out of bed

Mrs. B. M., age 72, widow, housekeeper. Diagnosis: fracture of patella. Suture of patella and application of cast. Development of influenza and bronchitis sixth post-operative day.



clean surgical cases complicated by bronchitis with high temperature and low total count and diagnosed as influenzal bronchitis. A monocytosis persisted, after the usual postoperative shift to the left and subsidence, until the bronchitis was well, followed by a return of eosinophiles and lymphocytosis.

#### SUMMARY

The theory, morphology and interpretation of the Schilling differential count has been discussed. The application has been demonstrated in a series of five illustrative surgical cases in which routine counts were made twice daily. The importance of observing all parts of the differential count, not merely the rise and fall of the staff count alone, is stressed. Emphasis is placed on the fact that a variation from the normal sequence of cellular reaction should put one on the alert for a complication. The monocytes and eosinophiles are extremely sensitive, indicators of the stimulation and defense reactions going on. An abnormal variation appears twenty-four to forty-eight hours before symptoms are apparent in the clinical condition.

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#### BIBLIOGRAPHY

1. Arneth: Die neutrophilen weissen Blutkörperchen bei Infektionskrankheiten. Gustave Fischer: Jena, 1904. (Cited by McDonald, S.: *Edin. Med. Jour.* [Dec.] 1931, Vol. 38: 657.)
2. Schilling, V.: *The Blood Picture*, Ed. 8, St. Louis, 1929, C. V. Mosby and Co.
3. Reznikoff, Paul: Immature White Blood Cell Counts in Infectious Diseases, *J. A. M. A.*, 93:963 (Sept.) 1929.
4. Weiss, Arthur: Newer Hematologic Aspects of the Neutrophils in Infections, *Am. J. M. Sc.*, 154:45 (July) 1927.
5. Boies, L. R.: Immature White Blood Cells in Otolitic Infections. *Arch. Otolaryngology*, 13:238 (Feb.) 1931.
6. Sabin, F. R.: Bone Marrow, *Physiol. Rev.*, 8:191 (April) 1928.
7. Miller, H. P.: The Leucocytes in Surgical Conditions: A Study of Two Hundred and Seventy-five Cases. *Jour. Lab. & Clin. Med.* (to be published 1932).

#### RETROPHARYNGEAL ABSCESS

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Retropharyngeal abscess is not an uncommon condition. Within the last three years I have treated five cases of this type in a general surgical practice. I have also assisted Dr. George de Tarnowsky in two complicated cases where an incision in the neck was necessary to drain the abscess.

The chronic type of retropharyngeal abscess occurs as a result of tuberculosis of the cervical vertebra. These are slow in onset and are of the same mechanism as psoas abscess, except that the former produces marked dyspnea and dysphagia. These cases require immediate evacuation of pus because of the danger of extension into the mediastinum.

Acute retropharyngeal abscess is manifested clinically by a very septic condition. It is caused by a secondary infection of the lymph vessels and glands in the retropharyngeal space. This space is located between the pharynx and vertebra, is bounded above by the base of the skull and extends behind the esophagus into the posterior mediastinum. The prevertebral fascia, along the medial aspect and parallel to the carotid sheath, gives off a thin lamina which is called the buccopharyngeal fascia. This closely covers the constrictor muscles of the pharynx and continues forward from the constrictor pharyngis superior on to the buccinator. The buccopharyngeal fascia is attached to the prevertebral fascia by loose connective tissue and thus produces an easily distended space between them. This space is called the retropharyngeal space. The retropharyngeal glands are one to three in number and are bilateral. They are located in this space behind the upper part of the pharynx and in front of the arch of the atlas, separated from the latter by the longus capitis muscle. The afferent vessels from the retropharyngeal glands drain the nasal cavity, the nasal part of the pharynx, auditory tubes and the middle ear. The efferent vessels pass to the superior deep cervical glands.

*Etiology.* Retropharyngeal abscess may occur at any age, though it is more common among children. This condition is often associated with scarlet fever, measles, diphtheria and erysipelas.

The most common causes are inflammation of the tonsils or pharynx, osteomyelitis of the body of the cervical vertebra and otitis media. As the middle ear empties into the retropharyngeal glands, the association of otitis media is easily explained.

*Symptoms.* There is a high elevation of temperature in all cases of acute retropharyngeal abscesses. Sore throat is an early symptom in the majority of patients. Pain and rigidity of the neck with enlargement of the cervical glands is always present. The glands are painful to palpation. Chills are present in some cases.

Dyspnea, dysphagia and aphonia are late symptoms, though some difficulty in breathing may be present quite early. Crowing respiration is quite diagnostic of this condition.

A grunting and rattling sound in the throat is present in the late stage. The patient usually breathes with his mouth slightly open and unsuccessfully attempts to clear his throat of the large accumulation of mucus and saliva. Dribbling of saliva from the corner of the mouth was present as a late symptom in one of our cases. Air hunger and cyanosis are late symptoms.

The patient is restless in the beginning of the disease, but becomes extremely quiet in the latter stage. As the disease progresses, the cervical glands become larger, more painful and may fluctuate.

Rapidity of pulse and respiration are present in almost all cases.

The blood count reveals a leukocytosis with an increased number of polymorphonuclear neutrophils. Albuminuria is generally present.

*Diagnosis.* The accumulation of mucus in the throat should be cleaned out before attempting examination. A good light is essential for a satisfactory examination of the throat. Redness and swelling of the tonsils and uvula with ulceration and patches over them sometimes complicates the diagnosis. The diagnosis of retropharyngeal abscess becomes quite simple when a swelling in the posterior or lateral wall of the pharynx is found. The posterior wall bulges forward and accounts for the obstructive symptoms. The swelling may be low down in the pharynx, so that the base of the tongue should be strongly depressed in order to get a good view. Palpation of the abscess for fluctuation is of great aid in diagnosis, though not always possible.

Various organisms may be isolated from the pus. Strepto-, staphylo- and pneumococcus were the common ones found in our cases.

Paratonsillar abscess may be associated with this condition.

In cases of croup in children the possibility of retropharyngeal abscess should be kept in mind.

*Complications.* A retropharyngeal abscess, when not recognized, may extend further down to the posterior surface of the esophagus and then continue to the posterior mediastinum and end into a mediastinal abscess.

It may extend to the deep cervical glands and form a large, deep abscess in the neck.

Rupture of the abscess in the throat may cause strangulation or aspiration in the lungs.

Other common complications are edema of the epiglottis, abscess of the pleurae and lung with resulting gangrene. Neglected cases may terminate as diaphragmatic abscesses.

*Treatment.* Surgery is always indicated in the treatment of retropharyngeal abscess.

In cases where the abscess can be seen through the mouth, drainage is instituted without any delay. In an adult with topical application of local anesthetic over the abscess a small incision should be made; when the pus is partly evacuated a pair of closed forceps is inserted to insure free drainage. Postoperatively the incision is kept open by means of the frequent use of a warm alkaline mouth-wash.

In children the management is different. General anesthesia should be induced by an expert and complete narcosis avoided. Either nitrous oxide or ethylene is satisfactory. We prefer an extreme modified Trendelenburg position, putting the head of the table way down. A wide exposure should be obtained with a mouth gag. Care is taken that the exposure does not interfere with respiration. A sharp incision is made and extended upwards for a distance of at least three-quarters of an inch. It is advisable to make the incision as close as possible to the midline from below upward. An aspirator is used to suction out the pus; the quantity withdrawn from what seemed a small abscess is often surprising. In our work we have used two aspirators; one held over the opening of the abscess and the other gently used in the throat to suction out any excess drainage. After the pus is evacuated the opening may be explored with a gloved finger to rule out any pockets. If the abscess is situated lower down, the upper part of the abscess is opened by strongly depressing the base of the tongue. A slight pressure below will drain the abscess freely. In one of our cases there was a small lateral abscess present having no communication with the central abscess. Possibility of a second abscess should be kept in mind.

After the operation the patient is turned on his stomach until thoroughly awakened from the anesthetic. We elevate the foot of the bed for a few days to promote better drainage. Aspiration



of pus in the lungs can always be prevented with this postoperative care.

An emergency tracheotomy for distortion of the larynx or trachea or edema of the epiglottis is sometimes necessary. Early diagnosis and treatment will avoid this operation.

The temperature usually does not become normal until the fourth or fifth postoperative day. Until septic absorption disappears the temperature continues; its persistence beyond the fifth day suggests some complication. Otitis media was the cause of continuation of high temperature in one of our cases; paracentesis of ear drum brought a successful recovery.

If there is a cervical extension of the abscess or the abscess is very low down, an incision in the posterior border of the sternocleidomastoid is most satisfactory. The external cervical route is also selected when the mouth of the patient cannot be sufficiently opened for incision.

In retropharyngeal abscess caused by tubercular osteomyelitis of the vertebra, an external incision is necessary. This incision is closed without drain after washing the cavity out with ether.

A retrosternocleidomastoid incision is most serviceable when an exploration is indicated.

The lateral pharyngeal abscess generally originates in the carotid lymph glands. The internal carotid artery is pushed inwards by the pus lying behind it. Pulsation can sometimes be felt in the wall of the pharynx. It is best to avoid incision through the mouth in cases of this type. An incision may be made along the anterior border of the sternocleidomastoid below the angle of the jaw. After the cervical fasciae are incised, by careful blunt dissection forward, inwards and upwards, the swelling can be approached and drained.

### CASE REPORTS

Case 1. Man, twenty-four years of age, complained of coryza, sore throat and fever for five days. When I saw the patient he was in a semiconscious state. Marked swelling of the cervical glands was present. He had rapid pulse and difficulty in breathing. Temperature was 104.5 degrees. Patient had not swallowed water for the past thirty hours. It was impossible to get him to understand and cooperate. The mouth was held open with great difficulty. After the stringy mucus had been cleaned out a bulging in the posterior wall of the pharynx was noticed. The tonsils were reddened and covered by follicular exudate.

A small opening was made in the midline over the bulging posterior walls of the pharynx and a large

amount of yellow, thick pus gushed out. The opening was enlarged with a pair of forceps.

Temperature dropped to normal on the fifth day. Patient made a satisfactory recovery.

Case 2. A male child four years old had suffered from a severe attack of croup. Diphtheria antitoxin was administered twelve hours previous by the attending physician without causing any improvement. Tracheotomy was considered and I was consulted. Rectal temperature was 105 degrees. Cyanosis and dyspnea were present. The cervical glands were swollen. The throat was examined with difficulty and a posterior pharyngeal wall swelling found. Fluctuation of this large swelling made the diagnosis very simple.

The abscess was drained under ethylene anesthesia. Breathing improved immediately after the operation.

The temperature dropped to normal on the fourth post-operative day and the patient made an excellent recovery. The throat culture was negative for diphtheria.

Case 3. Woman, thirty-two years old, had recurrent attacks of sore throat since the removal of her tonsils two years previously. Five days before examination she had contracted coryza and sore throat. Temperature was 103.2 degrees. Bilateral cervical adenopathy and some dysphagia were present.

Examination of the throat showed that there were pieces of tonsil tissue left bilaterally. There was a right superior paratonsillar abscess present. It was incised and drained. The temperature dropped to 100 degrees and there was noticeable improvement. On the fourth post-operative day the patient complained of dyspnea and dysphagia, and there was a great deal of pain in the enlarged glands of the neck. Her temperature had risen to 103.8 degrees. Inspection showed that a retropharyngeal abscess had developed since the previous operation. An incision made on the bulging posterior pharyngeal wall drained about three ounces of pus. No communication with the old paratonsillar abscess was present.

Temperature was normal on the fourth day; recovery excellent.

Case 4. Boy, four years of age, had been ill for eight days with bronchitis and sore throat. There was high fever from the very onset of the disease with rapid, painful enlargement of his left cervical glands. An incision in the middle of the sternocleidomastoid muscle was made by the attending physician. This did not reveal any pus but there was a great deal of bleeding from the depth of the wound, necessitating packing.

The patient was cyanotic with thready pulse and had dyspnea. Temperature was 105.6 rectally. The dressings in the neck were saturated with blood.

Throat examination revealed a large retropharyngeal abscess pushing the posterior pharyngeal wall forward and downward. It was drained through the mouth in the usual manner. It was necessary to remove the packing from the wound in the neck and ligate the severed ends of the external jugular vein. Temperature

became normal on the sixth day and recovery was satisfactory.

Case 5. Girl six years old was seen in consultation with Dr. M. R. Breck at the Ravenswood Hospital. Illness began with bronchitis three weeks ago. Temperature was 103.4 degrees. Glands in the neck were greatly swollen and tender. Leukocyte count 29,200, polymorphonuclears 83 per cent. Typical crowing respiration was present. Inspection revealed bulging abscess in the posterior pharyngeal wall. There was no tonsil tissue left in the throat. Under nitrous oxide and oxygen the abscess was incised through the mouth and a large amount of thick pus aspirated. There was a separate small lateral abscess present which was not connected with the main abscess. This was also incised. The temperature gradually dropped until the sixth day and then there was a rise to 104 degrees. A bulging left ear drum was discovered and a paracentesis done. Patient made a remarkable recovery. The pus contained staphylococcus, spirilli and few fusiform bacilli.

Case 6. A man fifty-eight years old was operated on by Dr. de Tarnowsky for left sided cellulitis of the neck following a severe attack of "flu." Patient very septic with a 105 degree temperature. Retrosternomastoid incision was made. Two ounces of pus drained from the deep seated abscess. The examining finger demonstrated that the abscess extended to the retropharyngeal space. Drainage continued for three weeks. Recovery.

Case 7. Man, thirty-five years old. Patient of Dr. W. K. Yeakel. Two months before admission to the Ravenswood Hospital had an attack of acute tonsilitis with enlargement of the left cervical glands. There was difficulty in swallowing during this attack. A physician made a small retrosternomastoid incision and drained a small amount of pus. The swelling persisted.

Examination shows that the old scar is healed but there is a large hard mass in the left side of the neck. No fluctuation present. Tonsils were submerged and the follicles were filled with small white spots. Fullness of the left lateral and posterior wall of the pharynx was observed. There was a temperature of 99 degrees. Leukocytes 13,000, polymorphonuclears 68 per cent., lymphocytes 32 per cent.

Dr. de Tarnowsky made a long incision in the posterior border of the sternomastoid muscle and exposed the mass. There was a great deal of adhesion present from the old operation. The mass was incised and large quantity of thick pus drained. The examining finger demonstrated that the cavity extended behind the pharynx and in front of the cervical vertebrae. The cavity was irrigated with ether and packed with iodoform gauze. No microorganisms could be isolated from the pus. The tonsils, subsequently removed by Dr. Yeakel, did not show any tubercle bacilli.

Comment. In the first five cases reported the diagnosis of retropharyngeal abscess was readily made. Simple drainage through the mouth gave satisfactory result. The last two cases were diffi-

cult to diagnose and required an exploratory retrosternocleidomastoid incision.

Case 6 probably had a cervical extension of a retropharyngeal abscess.

Case 7 suggested an abscess of tubercular origin. The history of a previous drainage and recurrence of abscess necessitated packing the cavity and letting it fill up by granulation.

*Conclusions.* Retropharyngeal abscess is not an uncommon condition; it may occur at any age.

Early diagnosis will prevent serious complications.

Treatment is always surgical and should be instituted immediately.

The proper avenue of approach will depend on the individual case.

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## PROSTATIC MASSAGE; FACTS AND FALLACIES\*

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Massage is the oldest of all methods of treatment. In the history of medicine massage is mentioned in all epochs. It is referred to in the Chinese and Hindu records as far back as five thousand years B. C. Papyrus of Ebers describes various forms of massage used in 1500 B. C. Prostatic massage, however, is of comparatively recent date. It came into vogue at the close of the last century, being first introduced in 1892 by a Swedish masseur, Thure Brandt. In 1894 it was adopted by the Royal Institute of Massage of Stockholm and subsequently, it came into almost universal use both on the Continent and America. Prior to the general acceptance of this method, diseases of the prostate gland were treated by the applications to the perineum, of remedies in the form of contra-irritation, heat, cupping, leeches and the like.

Buschke and Langer,<sup>1</sup> the leading German urologists, in their Text-book on Gonorrhea state, that "Massage of the prostate gland per rectum is the primary point in the treatment of prostatitis, vesiculitis and ampulitis and that all other methods of treatment are merely adjuncts of the massage."

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\*Read before the staff of the American Hospital, February 29, 1932, and before the staff of the Norwegian American Hospital, March 25, 1932.



Luys,<sup>2</sup> the French urologist, says: "Systematic treatment of prostatitis and vesiculitis, consisting of massage carefully, vigorously and systematically carried out, is simple and in most instances is followed by definite improvement." Janet,<sup>3</sup> who at the Fourth French Urologic Congress had strenuously opposed prostatic massage, in the later editions of his text-book recommends it, as a "necessary method of treatment."

However, others like Stutzin,<sup>4</sup> Hogge, Powez and Spinz<sup>5</sup> object to this method of treatment, as "unphysiological, unsurgical and dangerous." They claim that not infrequently it caused death by embolism, periprostatic phlegmon and generalized sepsis. Keyes<sup>6</sup> calls prostatic massage an "unphysiologic attempt to empty prostate of secretions, which is often not nearly so beneficial, as a regular sexual intercourse would be, if permitted, were it not for social and hygienic obligations."

In view of such marked differences of opinion as to the rationale of prostatic massage, we are confronted with this question: Is it not a fact that the prostate is primarily a musculo-glandular structure, and glands, being barriers of infection, are as a rule, not massaged for fear of generalizing the infective process? and, secondly: Is there any analogy to the prostatic massage in other fields of medicine, such as surgery, gynecology, etc.?

The opponents of prostatic massage rightfully say that no one would attempt to massage an inflamed tonsil, mammary gland, Bartholin or Skene's gland. And yet, in urologic practices, we massage also other glands, such as, Cowper's, Littré's, paraphrenal, etc.

Wherein, we may ask, lies the difference? Is prostatic massage only an exception that proves the rule? Or are there special theoretical considerations and practical justifications for this procedure?

A priori, prostates are chiefly massaged for chronic prostatitis. With this we all agree. We believe that chronic prostatitis, in about seventy-five to eighty per cent of all cases, is caused by chronic gonorrhea. Gonococci differ from other bacteria chiefly in that they have a tendency to localize in preformed lesions where they become encapsulated and form pseudoabscesses, which in the prostate are connected with prostatic ducts and may be evacuated on pressure

into posterior urethra. It is only after mixed infection develops that the invading organisms involve interstitial tissue of the gland and real abscess formation ensues. Bacteriologic examination of the contents of the prostatic abscess usually discloses the presence of staphylococci, colon bacilli, streptococci, diptheroids, occasionally pneumococci, while gonococci are found in not more than ten per cent of cases.

On the other hand, let us briefly consider mastitis, the subject which usually serves as a favorite example for those opposed to the prostatic massage. We know, that the inflammation of the mammary gland is usually caused by the pyogenic organisms, which form real abscesses. Histologically, the mammary gland differs markedly from the prostate gland, because it is almost a homogeneous mass, without definite glandular organization and, with all its size, the mammary has only from fifteen to twenty excretory ducts, while the little prostate consists of about fifty definite glands, having almost as many separate ducts, each emptying on the floor of posterior urethra. On account of its anatomical location, the prostate gland cannot be subjected to as many therapeutic manipulations as the easily accessible mammary gland, and massage, therefore, offers one of the few available methods of treatment in prostatitis.

Stutzin and others further object to the prostatic massage on the grounds that: (a) massage attacks only one posterior surface and not the whole of the prostate gland. (b) Massage is useless in chronic prostatitis, in the treatment of which, as generally held, it is especially indicated, because here the pathologic process is not endocanicular or endoglandular, but always interstitial. (On this point, however, pathologists differ). (c) Anatomically, the prostate is an exceptionally finely branched tubulo-alveolar gland, with exceedingly narrow excretory passages and by means of massage, it is possible to express only a small part of prostatic secretion and not the whole of it. (d) By massage, the latent or chronic foci of infection in the prostate, vesicle or epididymis may become reactivated into acute processes and, finally; (e) Massage tends to generalize the local infection by the contiguity of structures or by the lymph or blood channels.

Years of observation and clinical experience have convinced me, that, if prostatic massage

does tend to generalize infection, this happens comparatively seldom and, invariably, as a result of faulty massage, either in the method or in time of its performance. In fact, we know that there is also danger in the introduction of ordinary urethral catheter, bougie, sound, cystoscope, or even intravenous injection, and yet, no one will condemn these therapeutic procedures, for this reason.

From the foregoing it is apparent that the rationale of prostatic massage is still a controversial subject and that its general adoption is based largely on therapeutic and empirical grounds. In the absence of clearly defined theoretical indications for prostatic massage, I submit the following practical considerations as the bases of its action.

1. Massage tends to remove plugs of mucus and pus, which occlude prostatic ducts and follicles. It is generally assumed that the action of prostatic massage in emptying these follicles is a direct one, that is, the finger directly expresses the accumulated contents of the gland. However, I believe, that the emptying is mainly accomplished by the contraction of muscle fibres surrounding follicles. The prostate gland is very rich in muscle fibres which are arranged circularly around the fundus and longitudinally near the ducts and thus are ideally disposed for emptying of the gland. The fact that the muscle of the prostate is stimulated by massage is sometime shown clinically by the sudden hardening of the prostate that may be felt during massage.

2. Massage produces active hyperemia thus stimulating the reparative process by increasing blood and lymph supply to the gland. It causes an absorption of bacterial products by the blood stream, and drenches it with antigen, provoking a reaction, similar to that produced by the administration of vaccine. Clinically, this is often manifested by the presence of headache, fever and lassitude following the massage treatment.

3. Massage increases the muscle tonus of the gland. It is believed that the prostate acts as a powerful stimulant to the internal secretion of the testes, in which case the stimulating effect of massage should increase the activity of both the prostate and the testes, bringing a sense of well being and renewed vigor to men suffering of prostatism. Experiments of Serrallach and Parés<sup>7</sup> seem to show that the prostate forms an

internal secretion, which controls testicular function. They have demonstrated, that, in the dog, the bladder, ureter, vas and seminal vesicles are stimulated in vitro by the aqueous extract of mammalian prostate, including the human. It is reasonable to assume that similar contractions of homologous structures may be induced in man by the stimulation of internal secretion of the prostate.

We may say, therefore, that the objectives of prostatic massage, though not specific in character, consist mainly in the creation of more favorable local and general conditions for the healing powers of the organism to combat the disease entity known as prostatitis.

Let us briefly consider the forms of prostatic disease in the treatment of which, we believe, massage is indicated and necessary.

Massage is chiefly employed in the treatment of chronic prostatitis. Its use in acute forms is still a controversial subject. Wolbarst<sup>8</sup> makes a bold suggestion that the use of prostatic massage in case of acute anterior gonorrhea may prove of definite value in the prevention of the extension of inflammatory process to the prostate and vesicles. This procedure not only sounds a new and untried note in our treatment of gonorrhea in the male, but is diametrically opposed to the generally accepted dictum, that there is serious danger in any manipulation of the adnexa in the presence of acute gonorrhea. Wolbarst, however, believes that massage by its tonic effect and the resultant hyperemia, increases the power of the prostate to resist gonococcal infection. Besides, not infrequently acute urethral infection is grafted upon chronic or latent prostatitis and vesiculitis, thus indicating massage in the treatment of involved structures.

My personal opinion is that during acute stages of prostatitis and urethritis, massage should not be used. The prime therapeutic indications at the time are rest and watchful waiting to determine the progress of the disease, especially as to abscess formation, etc. After a lapse of time, when acute symptoms of inflammation have subsided, i.e., the temperature has become normal, pain, tenderness and tenesmus have lessened; when the gland no longer feels hot to touch and the tendency to abscess formation has passed, when, in short, the subacute stage has ensued, then a gentle and cautious massage may be instituted. Careful observation on whether the



massage improves or aggravates symptomatic conditions should be the basis for determination or whether to continue or stop the treatment. Any appearance of, or an increase in pain or other complications, is an indication for an indication for an immediate discontinuance of massage.

When we are dealing not with the primary or catarrhal form of prostatitis, but with follicular stage of the disease, i. e., when the inflammatory process has invaded deeper portions of the gland, and the accumulation of leucocytic infiltration and desquamated epithelium obstructed prostatic ducts and thus produced closed follicles, then a gentle massage may mobilize obstructing plugs and lead to their expulsion from the prostatic acini and ducts into the urethra. However, extreme care should be exercised in such cases, as the relatively thin basal membrane of the gland may rupture and allow pus to invade the periglandular tissues.

In diffuse prostatitis, with serous infiltration of connective tissue of the gland, with marked engorgement of the capillaries and with corresponding enlargement of the prostate, massage is definitely contraindicated for fear of abscess formation. The dividing line between acute diffuse prostatitis and the prostatic abscess is often very hard to draw. Some of the cases which we call acute prostatitis may be called by others prostatic abscess. Pathologically, acute diffuse prostatitis implies a marked infiltration of interstitial tissue with polymorphonuclear leucocytes, while abscess means a confluent supuration involving some cavity formation. Clinically, we reserve to acute prostatitis, cases which "blow up" suddenly, with enlarged, congested prostate, usually, but not always, tender, from which we may easily express seropurulent or sanguineous material and which often subsides promptly on palliative treatment.

When abscess has developed, Lumb<sup>9</sup> and others attempt to rupture it per urethram by a gentle but firm massage before resorting to surgical drainage. This, I believe, is a very unsurgical procedure, presenting grave dangers of intra-abdominal rupture of prostatic abscesses, reports of which are occasionally found in the literature and on the post mortem table.<sup>10</sup> However, after prostatic abscess has ruptured per urethram, as it usually does, it may be advisable to institute systematic and gentle massage to

facilitate its drainage and to hasten the reparative process of the gland.

In chronic prostatitis, massage is generally indicated in the treatment of all "soft" forms of this disease, i. e. when there is marked preponderance of exudative processes, lack of new connective tissue formation, in short, before sclerotic changes have developed. It is useful to massage a soft gland; it is, however, useless and often harmful to massage a hard gland.

To soft forms of chronic prostatitis belong the so-called "atonic prostate" with its large, flabby enlargement of the gland, a slight pressure on which usually brings a flow of clear fluid. This condition, in most cases, is induced by long repeated sexual irregularities and is manifested by prostrorrhea, spermatorrhea, disturbances of normal function of erection, ejaculation, libido, etc. Prostatic massage here acts by causing hyperemia and possibly by the irritation of nervous tissue, with which the prostate is so richly supplied.

Some surgeons, especially in England, routinely massage the early or soft stages of prostatic hypertrophy, before indications for operative interference have developed. I have personally observed symptomatic improvement from massage of such prostates, which is due, I believe, to its beneficial effect upon passive congestion of the gland, usually present during the first stages of prostatic adenoma.

Diagnostic massage of prostate and vesicles and examination of expressed secretion is of vital importance in, (a) the determination of the cure of gonorrheal infection, (b) in eugenic tests and (c) establishment of metastatic foci of infection in various obscure diseases caused by toxic absorption. It is rather remarkable that so little attention has been given the prostate and vesicles as possible sites of infection, when other foci are so much in the limelight. From the examination of prostatic fluid we arbitrarily say that patients with less than five polymorphonuclear leucocytes per a high power field are considered pathologically negative, though there is no dividing line by the leucocytosis in prostatic discharge in normal and abnormal. Presence or absence of bacteria in prostatic secretion is of great importance, as sterile discharge, even if leucocytes are excessive, may not be called an inflammation, but congestion. Repeated microscopic examinations are essential, as one negative finding does not exclude prostatic pathology.

Stained smears, cultures and animal experiments do not seem to be necessary to diagnose prostatitis, although further investigations along these lines are warranted.

Now, let us consider the mechanics of massage, namely, how to massage; (a) The position of the patient. I prefer the standing-stooped-over position, as a more convenient one for both the patient and the physician. Some massage in knee-chest, others, in Sims, the "squatting" position, etc.

(b) The direction of massage. In order to drain prostatic acini properly, pressure must be placed and directed in the manner of anatomical arrangement of the ducts. Experiments, however, have shown that excretory ducts of the prostate do not run in the same direction in all cases; that they often inter-cross and therefore, in order to empty them properly, it is necessary to massage in three different directions, viz., from the upper and outer border of the gland downward and inward, from the outer and lower border upward, and from the outer border towards the median line. All movements should be directed toward the median sulcus, where the deep urethra traverses the prostate gland. Especial attention should be given to the lateral borders of the gland, where infective processes are usually located.

Some clinicians, including Janet, recommend strong pressure at the end of massage upon the median sulcus in order to express the accumulated secretions. I do not believe in the advisability of massaging the prostatic urethra, as here are located the colliculus seminalis, verumontanum, orifices of ejaculatory ducts, etc.; massage may cause antiperistaltic movement of the ejaculatory ducts and lead to the resorption of expressed contents by the prostate, vesicles and epididymis. I am of the opinion that acute vesiculitis, epididymitis and prostatitis often develop through inadvertent massage of prostatic urethra. Besides, any pressure upon the median sulcus of the prostate is frequently the only painful part of prostatic massage, which of itself may not be comfortable, but should never be painful.

Stripping of seminal vesicles should be a part of every prostatic massage, because in the light of our present knowledge, prostatitis may not be considered apart from vesiculitis, both conditions forming a single disease entity, that of prostatic-vesiculitis.

Casper<sup>11</sup> long ago has postulated that (a) size and shape of prostates and vesicles may vary normally, as do facial features of people, and, (b) size of these organs is no guide to their pathology. Two lobes of the prostate are easily defined in health, while, if there is tenderness, swelling and loss of outlines of lateral lobes, an acute prostatitis is present. If one lobe is much larger than the other, probably the shrunk lobe has in the past been the site of an acute inflammation, which has been succeeded by fibrosis. The vesicles do not always occupy the oblique position ascribed to them by the textbooks. They may be lying horizontally along and, for the most part, intimately in contact with the upper border of the prostate, so that it is very easy to mistake an induration of a vesicle for that of upper border of the prostate; but, as the treatment of the two conditions is practically the same, the error of diagnosis is not serious.<sup>12</sup>

(d) How hard to massage cannot be answered academically. At first, massage should be performed with extreme gentleness and caution till the patient's tolerance and reaction to this procedure are established, confining our manipulations to gentle stroking of each affected part. If only one part is involved, massage should be directed only to that portion. Not infrequently the patient at the first seance faints from prostatic massage, administered either too roughly or for too prolonged a period; though the syncope in such cases may be due more to psychic causes, such as fear of massage, than to the actual pain present.

At subsequent treatments we may massage more vigorously, the severity of manipulations may be increased to the point of the patient's endurance, being guided in that largely by the consistency of the gland. If the gland is soft throughout, massage should be gentle, if firm and indurated, more vigorous manipulations are indicated. Soft and hard spots on the surface of the prostate, if present, must be massaged accordingly. Always consider the results obtained. Massage of hard, angular, unyielding prostate, as stated before, should be avoided.

(e) How long should a prostatic massage last? In Vienna it is customary to massage a prostate from two to three minutes. In this country we massage less strenuously, about one minute, if the massage is gentle, and only six



to eight strokes in each direction if more vigorously performed. Massage should be repeated not oftener than every other day, or, still better, every third day or twice a week. If severe, longer intervals are better.

(f) How long should the massage be continued? In subacute cases, till pathological secretions cease or become physiological. In chronic cases, decision is more difficult and is to be based on one's experience and medical intuition. Theoretically, prostate and seminal vesicles should be massaged till the expressed discharge no longer yields pus. Practically, however, as Keyes<sup>6</sup> states it, "the most successful practitioners honor these rules more in the breach than in the observance." Many a prostate continue to excrete pus in spite of all that can be done by most vigorous and long continued massage. The prostate often shows less pus in the expressed secretion two or three months after massage is stopped. Over-treatment, in hopes of expressing the last pus cell from these organs, is to be avoided. When a patient under treatment by prostatic massage no longer shows any favorable reaction from it, especially if he begins to complain of vague pains, loss of normal libido, or is getting tired of it, then further treatment is objectionable. Prolonged massage of the prostate at times exercises pernicious influence on psychoneurotic patients, who often derive enjoyment in the act or may come to regard a regular repetition of it as essential to their life and health.

"It is the duty of the surgeon," says Hugh Young,<sup>13</sup> "to recognize these sexual neurotics and not to permit, in spite of their importunities, continuation of treatment which in the end is only going to make matters worse."

In general, it is advisable to give prostatic massage in courses of six to eight weeks' duration, with bi-weekly intervals of rest. Massaging should always be done on a full bladder. I usually request the patient to report for treatment with a full bladder, asking him to partly void in two glasses before massage. I examine the specimens, then massage and, after he empties his bladder, irrigate him by Janet method with some mild antiseptic solution. If rectal mucosa is too tender or too irritable to permit digital introduction, preliminary rectal douche or sitz bath will enable one after a few

days to perform it. Mechanical devices for prostatic massage, the so-called Feleki's fingers, are satisfactorily employed by some clinicians, but their use by the inexperienced is not without danger.

As contra-indications for prostatic massage we should consider:

(a) Acute infections of the genito-urinary organs.

(b) Any febrile states.

(c) Hematuria, of any origin.

(d) When massage induces bacteruria, phosphaturia, or oxyuria, it is advisable to discontinue it, at least temporarily.

(e) Painful or bleeding hemorrhoids, rectal fissures, acute proctitis, periproctitis, colitis, etc.

(f) Tuberculosis, prostatic or vesical calculi.

(g) Malignancies of the genital tract.

(h) Cases recently operated on.

(i) Marked hypertension, hysteria or neurasthenia.

*Conclusion*—The facts set forth in this paper are not new, but they do need reiteration, to the end that we may become more conversant with this therapeutic procedure, which may prove invaluable, when properly used, without, at the same time, becoming over-enthusiastic about its merits by recognizing the dangers involved.

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#### BIBLIOGRAPHY

1. Buschke, Adolph und Langer, E.: *Lehrbuch des Gonorrhoea. des Mannes.* J. Springer, Berlin, 1926.
2. Luys, Georges: *A Text-book on Gonorrhea and Its Complications.* Wood & Company, New York, 1913.
3. Janet, Jules: *Diagnostic et traitement de la blennorrhagie chez l'homme et chez la femme.* Maisson & Co., Paris, 1929.
4. Stutzin, J. J.: Soll man die Prostata massieren? *Med. Welt V.*, 1946, 1931.
5. Hogge, Powez, Spintz,—quoted by Stutzin in the above.
6. Keyes, E. L.: The treatment of gonorrhea of the male urethra. *J.A.M.A.* 75, November 13, 1920.
7. Serralach and Parés, quoted by Lipschultz, H.: *The internal secretions of the sex glands.* William and Wilkens Company, Baltimore, 1924.
8. Wolbarst, A.: Prostatic massage. *Med. Jour. and Rec.*, 1925.
9. Lumb, Norman P. L.: *The systematic treatment of gonorrhea.* Lee and Febiger, New York, 1918.
10. Henry, C. P.: An unusual result of simple enema. *Atlant. Med. Jour.* 76, November, 1927.
11. Casper, Leopold: *Lehrbuch der Urologie.* Urban and Schwarzenberg, Berlin, 1903.
12. Walker, Kenneth M.: Prevention and treatment of chronic gonococcal prostatitis and vesiculitis. *Brit. Med. Jour.* 451, September 15, 1923.
13. Young, Hough: Psychoneurotic and prostatic massage. *Urol. and Cut. Rev.* 138, 1930.

## TRAUMATIC RUPTURE OF THE SPLEEN\*

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CHICAGO

Rupture of the normal spleen is not as uncommon as most of us are led to believe. A search through the literature reveals that the organ is injured in about 30% of all abdominal injuries. In my own experience, the two cases which I shall discuss came on my service at the Edgewater Hospital within a period of four months. I am therefore making a plea to be on the lookout for rupture of this organ in all cases of abdominal injury. Many cases are recognized too late to do the patient much good, as the prognosis and mortality is directly dependent upon time elapsed between the injury and the operation. The cause of ruptured spleen may be divided into two groups, viz.:

1. *Spontaneous*; that is, conditions which render the spleen more friable, or increased in size, so that it is more liable to rupture, such as malaria, Banti's disease, tuberculosis, typhoid fever, etc., which will not be considered in this paper.

2. *Traumatic*; that is, injuries, such as accidents, automobiles or wagon wheels passing over body; or blows to abdomen, kicks of horses, falling on irregular objects, falling distances, railroad accidents, etc. The automobile is now our chief offender, and most cases are usually associated with one or more fractured ribs. This group can be divided into two groups; that is:

1. *Immediate*, in which the hemorrhage may be so copious as to cause sudden collapse and death before any steps can be taken to save the life of the patient.

In less severe cases a moderate hemorrhage develops in which all signs of internal hemorrhage is present, with a tendency to collapse; increasing pallor, and a clammy skin; feeling of suffocation; pain in the left side of abdomen and pain in left shoulder, with beginning dullness in flank.

2. *Delayed*. Thoses cases in which the signs of internal hemorrhage are not obvious for days or weeks. With different observers, cases have been reported with recovery in which the signs were delayed from 3½ to as long as 28 days.

According to Counsellor, the delayed hemorrhage may be grouped under three heads:

(a) Inter-splenic minor hemorrhage with secondary rupture of the spleen.

(b) Peri-splenic hematoma which may become encysted, suppurative, become organized or rupture into the peritoneal cavity, producing fatal hemorrhage.

(c) Continuous slow hemorrhage from the onset of the accident. The symptoms, as already mentioned, will depend on the severity of the case, whether the hemorrhage is copious, moderate or delayed. Essentially, there are signs of shock and internal hemorrhage. A similar classical picture may be observed in tears of the liver, kidney, pancreas or ruptured viscus, etc. However, the following symptoms and signs, following a history of injury, warrant the diagnosis of a ruptured spleen and should justify an exploratory operation.

1. Pain in upper left abdomen, often increasing in intensity.

2. Tenderness and muscular rigidity over lower chest and upper abdomen.

3. Some difficulty in breathing.

4. Pain referred to left chest and especially to left shoulder.

5. Signs of shock and internal hemorrhage, pale, ashen grey face, cold clammy skin; soft rapid pulse, although at first pulse may be slow; sub-normal temperature, later rises half to one degree; blood pressure low and within two hours a drop of 10 to 30 points, depending upon severity; red count declines from 4,500,000 to 2,500,000 or less; hemoglobin drops from 80-85 to 65 or less, depending upon severity of hemorrhage; white blood count usually high, 10,000 to 30,000; vomiting in about 21% of cases; abdominal distension usually in all cases. The diagnosis is made on the following points:

1. History of left sided trauma.

2. Pain in left chest and shoulder.

3. Difficulty in breathing.

4. Signs of internal hemorrhage and shock, cold clammy skin, soft rapid pulse, sub-normal temperature, etc.

5. Abdominal rigidity.

6. Increasing dullness in left upper quadrant.

7. Signs of external injury, although 22% may shown no evidence.

Ruptured spleen should always be suspected, especially in those cases which show no external

\*Report of two operative cases with spinal anesthesia.



signs of injury but are in profound shock, with pain in left hypogastrium. In both of my cases there were no signs of internal injury, but the ashen grey pallor, out of all proportion to evidences of injury, with pain in the left hypogastrium, led to an early diagnosis of ruptured spleen, and proper treatment of shock and hemorrhage led to ultimate recovery.

The signs of hemorrhage may be delayed for several hours or days, and therefore should be remembered in the diagnosis, if one is on the look out for this condition in all cases of abdominal injury.

*Mortality and prognosis* depend upon the severity of injury, the extent of other organs injured, amount of blood lost, time of operation, facilities for blood transfusions, etc. Operative cases now have in general about 30% mortality. In splenic injuries without operation, it is 97%. When splenectomy is done, it varies from 20% to 40%, depending upon above factors. In War practice it was 50%.

*Pathology.* The rupture may vary from a slight rent to complete tearing of the spleen and its vessels—usually large blood clots fill the rent in the spleen with large blood clots under the diaphragm and around the liver. Blood clots irritating the diaphragm give rise to pain in left shoulder. The spleen or parts of spleen may be found anywhere in the abdomen. Rupture of spleen usually occurs when abdominal muscles are relaxed, thus receiving the full blunt of the blow. It is often associated with fracture of one or two ribs and with injury to other parts. A delayed hemorrhage may be due to a vessel that ruptures in the substance of the spleen, forming a sub-scapular hematoma and upon effort ruptures from the intra-capsular tension.

*Treatment.* The treatment is essentially surgical, either splenectomy, tampon or suture; combating of shock and hemorrhage which may be divided into two parts: 1. treatment of shock; 2. arrest of hemorrhage. The time element is important, as the prognosis is dependent upon the time between the injury and the surgical interference. Expectant and medical treatment is not advisable. Shock is treated by morphine, stimulants, warm blankets, salines or glucose and blood transfusions. The direct method is preferable and should be used before and after surgery in these cases, if possible. After combating

immediate shock by above measures, one should not wait too long, but operate immediately.

Splenectomy is superior to suture or tampon and was our method of choice, although the individual case must be decided upon by the surgeon at the time of operation. For example, if there is only a small rent on the anterior surface of the spleen, a few small mattress sutures with or without a tampon may suffice. If, on the other hand, the rent is posterior or not easily accessible, or is extensive, a splenectomy is preferable. If the condition of the patient is critical and hemorrhage is severe, tampon or clamps may be advisable and after another transfusion giving the patient enough time to recover, so that later splenectomy can be done with less risk. But where condition permits, it is best to consider splenectomy immediately.

*Anesthesia.* Any of the anesthetics may be used—ether, gas or local. Most surgeons are now using local and ethylene gas. In both of our cases, spinal anesthesia was employed successfully. From my experience, I would say that it should be the anesthetic of choice in these cases. In the first place, the patients are too ill to have a thorough cleansing of the bowel; the abdomen is distended from the blood in the cavity and an associate ileus may be present. The spinal anesthesia enables the surgeon to deal readily with the bowel, which collapses after its use and renders exploration easier. The spleen is easily accessible without a great deal of trauma, which is a deciding factor in the recovery of these patients. The blood may be aspirated with a suction apparatus in preference to use of laps, packs and mopping. Then the blood can be citrated and used later if no donor is available.

In spite of the prevalent idea that spinal anesthesia is contra-indicated in surgical cases with low blood pressure, such was not the case in both of our cases. In one, before the spinal anesthesia was attempted, the blood pressure could not be obtained by the anesthetist; and in the other case, the systolic pressure was only 40 milligrams of mercury. In all of our cases of spinal anesthesia a preliminary ampule of 1 to 2 cc of ephedrin and novocain is injected subcutaneously at the site of puncture, which we believe has a sustaining effect on the blood pressure.

*Results of Splenectomy.* The exact function of the spleen is unknown, but this much is true:

it is not essential to life and other organs seem to take on some of its function. For example, statistics from autopsies show accessory spleens to be quite common, and where splenectomy has been done, accessory spleens have hypertrophied to almost the size of the normal spleen. There is also an enlargement of the lymphatic glands and the abdomen becomes studded with numerous small glandular nodules which are said to be characteristic of splenic tissue.

### REPORT OF CASES

Case 1. A young white female, aged 11 years, was carried into Edgewater Hospital on August 13, 1931, by her father at 9 P. M. with the following history: The patient was playing on the roof of her home and fell about 10 feet to the ground, landing on her abdomen. She complained of pain in the abdomen and left shoulder and difficulty in breathing and faintness.

I had cared for the child repeatedly since infancy, but I had not seen her for about two years before her present admittance. I was immediately struck with the marked pallor of the child and inquired of her father if she was as pale before the accident as she was, when I saw her. He stated she was always pale, but he thought she was much more so since the accident.

Physical Examination: There were no external signs of injury and the general examination was negative except for moderate tenderness over the left hypochondrium. Temperature 98, pulse 80, respirations 20. Roentgenograms of the left shoulder, humerus, ribs, pelvis, femur and lungs revealed no abnormalities.

Laboratory Findings: Urine was normal. Hemoglobin 80%; red blood count at 9 p. m. (time of admission) 3,900,000; white cell count, 6,250; 80% polymorphonuclear; lymphocytes 20%.

A tentative diagnosis of a ruptured spleen was made and patient was kept in hospital for further observation and treatment. Seeing there was no evidence of fracture, we had considerable difficulty in convincing the father that the child should stay in the hospital. She was put to bed with ice bags to abdomen and warm blankets. By 1 a. m. the red count was 3,020,000; hemoglobin dropped to 75%; the white count rose to 10,200. By morning the red blood count was 2,850,000, hemoglobin 60% white count 12,600. The pulse rose from 80 on admission to 130 and the temperature from 98 to 99.6. By noon the respiration rose to 38. Patient vomited several times during the night; had a stool in the morning that contained no blood. The abdomen became distended and some dullness was present in left flank. Laparotomy was decided upon.

Patient was given 1000 cc. normal saline by hypodermoclysis and 1/6 grain of morphine. The father was found compatible for transfusion. Patient's blood pressure was 90 systolic, diastolic 60 on admission. By morning it was systolic 60 m—diastolic 40; before

operation systolic was 40 mgm. The operation was started at 4 p. m. Patient given s. ephedrin and novocain at site of puncture using 100 mg. crystals for spinal anesthesia. A left upper rectus incision was made, and on opening the abdomen about 1500 cc. of dark blood and several large blood clots were removed. The spleen was located and presented a fairly deep laceration across the hilus with large blood clots in between the edges. I felt that the laceration was not extensive enough to do a splenectomy so I proceeded to place two mattress sutures across the laceration so that perfect hemostasis was obtained when they were drawn together. To further insure against secondary hemorrhage this was reinforced with a moderately sized pack and the abdomen was closed with a drain. The child was then given a transfusion of 500 cc. of blood by the Scannell method from her father and returned to her room, where she was given another 1000 cc. of fluid by protoclysis. The child made an uneventful recovery and was discharged August 28, remaining in hospital only fifteen days.

Case 2. E. M., a white girl 20 years of age, came on my service at the Edgewater Hospital on January 11, 1932, at 9:15 p. m. The history was of an automobile accident with the following complaints: Pain in left chest, left shoulder, feeling of suffocation, slight bruises and contusions about left thigh and leg.

Roentgenograms of spine, pelvis, chest and legs failed to reveal any signs of fracture.

Physical examination revealed a young lady of about stated age in state of shock; she was cold, clammy and her face was ashen grey. There was pain and tenderness over the abdomen, especially over the left hypochondrium and pain in left shoulder. Patient was put to bed for observation, as we suspected internal injury. Temperature was 97.8, pulse 88, respirations 20. She became nauseated and vomited several times during the night. Red blood count on admission, 3,370,000, hemoglobin 72% white count 20,000, polymorphonuclear 82%. By morning the red count was 2,750,000, hemoglobin 68%, white count 29,000, polymorphonuclear 84%. Temperature rose from 97.8 on admittance to 99.4 degrees by morning. The pulse rose from 86 to 152. The abdomen became more distended and pain more marked in left shoulder. The pain in the abdomen was diffuse throughout, but more marked on left side, with beginning rigidity and dullness in left flank. Patient had difficulty in breathing (air hunger). A diagnosis was made of severe internal hemorrhage from ruptured spleen and immediate laparotomy was decided upon.

Patient was given morphine sulphate grains  $\frac{1}{4}$  and 1000 cc. saline by hypodermoclysis. Her brother and sisters were grouped. A blood transfusion of 500 cc. of blood from her brother was performed before operation.

Under spinal anesthesia a left upper rectus incision was made. About 1700 cc. of blood and many clots were removed. The spleen was found and had several large deep lacerations extending down and through



the hilus that were actively bleeding. A clamp was quickly applied on the pedicle. The spleen was removed and doubly ligated with chromic catgut. Patient's condition appeared quite grave. She was given caffeine sodium benzoate and digafolin on operating table. The abdomen was quickly closed without drainage. Another transfusion of 500 cc. of blood from sister was performed. The condition of the patient was greatly improved before leaving the operating room.

It is interesting to give the notations by our anesthesiologists who stated that the pulse was thready, very weak and hard to count, varying from 140 to 160 and that the blood pressure reading before operation could not be obtained. Physiological saline was given on her return to her room. On a liver diet and iron the patient made a rapid recovery and left the hospital on January 26, remaining only fifteen days. She returned every two weeks after leaving the hospital and appears to be in perfect health and shows no ill effects following the splenectomy.

*Comment.* It is interesting to note that both of these cases were females, one 11 and one 20 years of age. In spite of the fact that they were kept under close observation for internal injury, obvious signs of hemorrhage were not evident until about eight to ten hours after the injury. They were operated upon about fifteen hours after the injury under spinal anesthesia and recovered and left the hospital after fifteen days. In both instances the blood count and hemoglobin were normal on admission and dropped considerably after the first six hours. The white count was increased in both cases. The pulse rate increased from 83 on admittance to 140 during observation. The blood pressure was hardly obtainable at time of operation.

### Conclusions

1. Ruptured spleen should be suspected in all cases of injury to abdomen, since it comprises 30% of all abdominal injuries.

2. The diagnosis is made essentially on the following points:

History of abdominal injury, signs of shock, signs of internal hemorrhage, pain in left hypochondrium, pain in left shoulder, tendency towards rigidity, nausea, vomiting and dullness in flanks.

3. Increasing and persisting left upper abdominal pain following history of abdominal injury, with no external signs of injury, is highly presumptuous of ruptured spleen.

4. The treatment of the shock and hemorrhage is essentially by blood transfusion.

5. The treatment of the ruptured spleen is essentially surgical. After immediate lapa-

rotomy, splenectomy is the operation of choice.

6. Spinal anesthesia is a suitable anesthesia for these two types of cases; the spleen becomes easily accessible by the collapse of the bowel and exploration is much easier. A low blood pressure apparently is no contra-indication for spinal anesthesia in internal hemorrhage.

### BIBLIOGRAPHY

- Buxton, J. T.: Traumatic Rupture of the Spleen, *Am. J. Surg.* 1922, xxxvi, 312-314.
- Clinton, F. S.: Traumatic Rupture of Spleen, Splenectomy & Recovery. *J. Oklahoma M. Assn.* 1920.
- Coley, B. L.: Traumatic rupture of spleen; splenectomy; autotransfusion. *Am. J. Surg.* 1928, iv, 334-35.
- Connors, J. F.: Traumatic rupture of spleen. *Ann. Surg.* 1922, lxxvi, 785-86.
- Connors, J. F.: Splenectomy for trauma. *Ann. Surg.* 1928, lxxxviii, 388-403.
- Dawson-Walker, E. F.: Traumatic rupture of normal spleen. *Lancet.* 1931, i, 523-24.
- Dretzka, L.: Rupture of spleen. *Surg. Gyn. & Ob.* 1930, li, 258-61.
- Frank, L. W.: Traumatic rupture of spleen, Splenectomy, Kentucky, M. J. 1925, xxiii, 431-33.
- Grigsby, G. P.: Traumatic rupture of spleen. *Am. J. Surg.* 1921.
- Heineck, A. P.: Traumatic rupture of normal spleen. *Ill. M. J.* 1929, vol. 56, 205.
- Jackson, T. S.: Rupture of spleen with report of unusual case. *S. G. & Obst.* 1925, 331-332.
- Jones, J. F. X.: Splenectomy for traumatic subcutaneous rupture of spleen. *Am. J. Surg.* 1924, xxxviii, 11-12.
- Koster, H.: Traumatic rupture of spleen. *Med. J. & Rec.* 1926, 1-4.
- McIndoe, A. H.: Delayed hemorrhage following traumatic rupture of spleen. *Proc. Staff Meet. Mayo Clin.* 1928, iii, 365.
- Metcalfe, R. F., and Fletcher, L. Z.: Ruptured spleen; with report of three cases. *Ann. Surg.* 1922, lxxx, 186-90.
- Nelson, L. D.: Case of traumatic rupture of spleen in elderly man. *Lancet*, 1928, ii, 863.
- Pfeiffer, D. B., and Smyth, C. M.: Late results of splenectomy for traumatic rupture of spleen. *Ann. Surg.* 1924, lxxx, 562-68.
- Porter, M. F.: Traumatic rupture of spleen and kidney. *J. Indiana M. Assn.* 1928, xxi, 203-4.
- Robitshke, E. C.: Traumatic rupture of normal spleen, *Minnesota Med.*, 1923, vi, 363-76.
- Scott, Lieut. C. F.: Dissertation on traumatic rupture of spleen, *Chicago Med. Rec.*, 1918, xxx, 7-12.
- Trumble, H. C.: Traumatic rupture of normal spleen. *Med. J. Australia*, 1929, i, 273-76.
- Willis, A. M.: Traumatic rupture of normal spleen. *Surg. Gynec. & Obst.*, 1919, xxix, 33-39.

### GOITER IN PREGNANCY

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For our purpose we will divide this subject into three parts: pregnancy occurring in goiter, goiter occurring in pregnancy, and goiter following pregnancy. Of these the most important is the first, though its incidence is perhaps the least.

Persistent simple goiter of adolescence and simple goiter occurring after adolescence cause

very little disturbance in pregnancy. Occasionally these may become somewhat toxic, but may practically always be controlled. Pregnancy complicating toxic goiter, however, receives more careful consideration. To begin with, the incidence of pregnancy in hyperthyroidism is low; so low, in fact, that hyperthyroidism is often listed as one of the causes of relative sterility. This is probably due to the fact that there is a strong sympathetic hormone relationship existing between thyroid and ovarian function. Ovarian hypofunction is commonly associated with hyperthyroidism, and may thus render the woman with toxic goiter less fertile.

When pregnancy does occur in hyperthyroidism, the doctor usually experiences considerable anxiety due to extremely rapid pulse, weak spells, vomiting, apprehension and other symptoms of increasing thyrotoxicosis. Though it has been observed that occasionally the effect of pregnancy is a diminution of the toxicity, the usual outcome is an exaggeration of symptoms due to aggravation of the disease. Its effect may be so severe that continuation of the pregnancy becomes alarmingly dangerous—even fatal. In hyperthyroidism, therefore, pregnancy is a complication best avoided until such a time when the goiter has been cured either surgically or otherwise. So few recurrences result from pregnancy that it is not of serious enough consideration to condemn a cured goiter patient to future childless life.

In addition to the damage caused in hyperthyroidism by pregnancy, there may also be an interference in the progress of gestation by the goiter. In the exophthalmic types, particularly, spontaneous abortion and premature labor are common occurrences. There is no reason to believe, however, in case pregnancy is carried through, that the baby will be defective or otherwise handicapped in health or chance in life other than that produced by the effect of parental disturbance in its upbringing. These babies are quite as normal as others.

As to treatment, the simple goiters are usually amenable to small doses of thyroid substance or of iodine preparations. In all instances, rest and protection from worries and shocks, mental and physical, are of importance. The administration of thyroid substance or iodine in the more toxic types is a moot question, considered beneficial by some, and thought to be positively con-

traindicated by others. Surgery is often resorted to, and does not usually interfere with the pregnancy, though it is rendered more dangerous to the individual by her pregnant condition. In severe toxicosis the choice of procedure, whether operation, therapeutic abortion, or policy of conservatism, is largely a matter of judgment to suit the individual case. I cannot but believe that in any instance the result is problematical. Regardless of the plan adopted, satisfactory terminations are apt to be mingled with gross disappointments. In less severe conditions, certainly the conservative method of treatment is the course of choice.

During pregnancy thyroid enlargement is a very common occurrence. Most of these goiters are of a simple colloid type, and are non-toxic, being physiological phenomena which take place as a result of attempt on the part of the glands to meet the demand of excessive load thrown upon them by pregnancy. Toxic goiter may also develop during pregnancy. This happens too frequently to be considered incidental. But whether it is caused by the pregnancy or was potentially present and precipitated by the condition is not known, and is of negligible consideration. When goiter is suspected as a complication, careful supervision and medical management should be instituted. This type will nearly always respond sufficiently that the patient may be allowed to go to term and deliver spontaneously, interference in the second stage of labor being used to hasten delivery if warranted by cardiac symptoms. It is the opinion of the writer that all these cases should be treated conservatively. Should the symptoms be so grave as to be not amenable to such management, and the life of the patient felt to be endangered, then conservative surgery of the gland is preferred to abortion, as abortion at such a time is apt to precipitate a dangerous toxicosis.

In normal pregnancy there may often be symptoms such as vomiting, malaise, tremor of the hands and tachycardia; and the basal metabolic rate tends to increase, often becoming as high as plus 30% in the later months. Such symptoms alone should not lead to diagnosis of hyperthyroidism. On the other hand, hyperemesis may be the prominent feature of a hyperthyroidism the other symptoms of which may be masked. For this reason hyperemesis gravidarum should



not be diagnosed without first considering toxic goiter as the cause of vomiting.

Goiters incident to pregnancy often subside after term, but may persist, and must then receive the same consideration of goiters at large.

Thyrotoxicosis sometimes develops from one to six months after termination of pregnancy. This occurs with sufficient frequency to consider the condition an etiological factor of toxic goiter. Here again the treatment should be that accorded other goiters. Ovarian hypofunction following the puerperium may produce a syndrome of symptoms very closely simulating hyperthyroidism. Basal metabolism test is the deciding point of differentiation.

To sum up in conclusion, the following important considerations are noted:

1. Simple persistent adolescent goiter or simple goiter of adult life causes very little trouble in pregnancy, and should not be considered a contraindication to pregnancy.

2. The incidence of pregnancy in hyperthyroidism is low, but is dangerous, and should be avoided.

3. Thyrotoxicosis in a cured patient seldom recurs as a result of pregnancy, and the fact that the condition once existed should not contraindicate future child-bearing.

4. Spontaneous abortion and premature labor frequently occur in Graves' Disease.

5. The babies born to mothers with toxic goiters begin life quite as normally as other infants.

6. Simple goiter, whether existing before pregnancy or occurring after that condition is instituted, is quite amenable to small doses of thyroid substance or iodine preparations.

7. All milder forms of toxic goiter in pregnancy should be treated conservatively, and the pregnancy carried to term.

8. In the event of surgical interference, conservative thyroid surgery is preferred to abortion, as the risk to life is less, and as the pregnancy often remains undisturbed.

9. Pregnancy may be considered the etiological factor of hyperthyroidism occurring either during gestation or after term. In the former instance the goiter often returns to normal after pregnancy is over. Goiter present after the puerperium should be handled as any other goiter.

10. Mild symptoms during pregnancy and elevation of basal metabolism in the later months

to not over plus 30% should not be classified as hyperthyroidism.

11. Hyperemesis gravidarum should not be diagnosed without hyperthyroidism being first ruled out.

12. Hyoovarianism following pregnancy may very closely simulate hyperthyroidism, and must be differentiated from it.

## BIBLIOGRAPHY

1. Clute, H. M., and Daniels, D. H.: American Journal of the Medical Sciences, 1930, No. 179, p. 477.
2. Hinton, J. W.: American Journal of Obstetrics and Gynecology, 1927, No. 13, p. 204.
3. Kosmak, G. W.: Toxemias of Pregnancy, p. 41.
4. Mussey, R. D., and Plummer, W. A.: The Journal of the A.M.A., Aug., 1931.
5. Falls, F. H.: Northwest Medicine, Sept., 1929.

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## CONSIDERATION OF URETERAL CALCULI\*

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The relative frequency of ureteral calculi places them in a position of diagnostic importance not only to the surgeon but to the internist. The diagnosis and removal of ureteral calculi by means of cystoscopy and ureteral manipulation approximate the art of the accoucheur.

Calculi may be divided into two classes: *Primary*, known as uric acid, xanthin, cystin and calcium oxalate, and composed of substances found in the urine; *secondary* calculi, which are associated with urinary stasis and infection. Primary calculi are uncommon and may occur in a urinary tract showing no evidence of disease. Their etiology is obscure. Secondary calculi are common. A careful consideration of the factors of urinary stasis and infection will suggest prophylactic measures in stone prevention.

In the presence of urinary toxins, bacterial or otherwise, the pelvic and ureteral muscles become damaged and atonic. Normal peristalsis is interrupted, and there occurs a condition of urinary stasis or stagnation. Very frequently, there may also exist an actual narrowing of a ureteral segment, the result of previous periureteritis or secondary to contiguous pathology such as vesiculitis or salpingitis. A condition of urinary stasis when once established offers a fertile field for the incubation of organisms. Further im-

\* Read before the Evanston Branch of the Chicago Medical Society, May 5, 1932.

pairment of function results with more marked renal secretory changes, especially that of acids. Staphylococci, B. coli, and streptococci are frequent invaders and may reach the field through contiguous tissue, or more often by means of the blood stream from foci of infection and influenza. Rovsing was the first to express the opinion that an urea-splitting strain of organisms was the most frequent cause of recurrent calculi. Later other investigators isolated urea-splitting strains of staphylococci and B. coli. In the presence of such stasis and bacterial action, a detached piece of epithelium or foreign body may readily become a nucleus for the deposit of urinary salts. The center of such calculi contain viable bacteria. Perhaps the ability of some strains of bacteria to split urea influenced the results of animal experiments carried out by Rosenow and Neisser, in which a strain of green streptococci isolated from the urine of a lithiasis patient, was sealed in the dental root canals of six dogs. Five of the dogs developed urinary calculi.

About ten years ago there occurred an epidemic of urinary calculi among animals, principally sheep, at the Animal Experiment Station of Iowa State College. The mortality rate was high. An exhaustive study disclosed the probable cause to have been an epidemic of upper respiratory tract infection some months before affecting the same animals.

The ureter is not the site of calculous formation in most instances, but rather the passage-way. Practically considered, ureters are hollow muscular tubes, about 30 cm. in length, connecting the renal pelves with the bladder. A ureter is about the size of a quill, varying between 0.2 and 1 cm. in diameter due to three or four anatomical narrowings. Structurally, the ureter is composed of an epithelial lining free from glands but rich in nerve supply. The muscular wall is composed of three layers which are surrounded intimately by plexuses of nerve filaments derived from the vagus and celiac axis. Here also are blood vessels. These in turn are surrounded by an outer fibrous sheath. Possessing such a structure, the ureter is afforded the property of peristalsis which is synchronous with the contracture of the renal calices and pelvis, and serves to propel the urine to the bladder.

Any interference with the peristaltic flow of urine or any irritation of the tract provokes

symptoms in proportion to the impairment. The symptoms are usually of four types:

1. Ureteral colic due to hyperperistalsis. The pain is colicky, severe and radiates to the groin, thigh or genitalia.

2. Renal tension pain due to back pressure of urine, the result of obstruction or block. This type of pain is dull and very often associated with, but overshadowed by a ureteral colic. Renal tension pain often persists between ureteral colics and is made severe by first percussion over the kidney area posteriorly.

3. Urinary sepsis due to bacterial action and toxic absorption. In this instance the symptoms are mostly general.

4. Reflex, affecting the gastro-intestinal tract.

Ureteral colic and renal tension pain are not easily confused with other disease. Urinary sepsis may exist in the absence of other symptoms and varies in degree depending upon ureteral drainage.

Reflex symptoms suggesting gastric or duodenal ulcer, appendicitis or colitis may mask the diagnosis in the absence of colic or renal tension pain. It is not unusual for the roentgenologist to find an unsuspected ureteral calculus shadow during a gastro-intestinal series. Symptomatically, a calculus in the ureter may simulate an acute abdominal crisis.

Calculi not only interfere with the flow of urine, but irritate the ureteral mucosa and therefore may cause any or all of the above symptoms. Occasionally there is a marked hematuria due to mucosal laceration.

The diagnosis of ureteral calculus cannot always be made roentgenologically, many stones, even large ones, failing to cast a shadow.

When a diagnosis of ureteral calculus is made, additional information is necessary in order to determine the location, size, position and consistency before inducing "stone labor." One must consider the age, the general condition of the patient, and also the urinary function of the *afflicted* and the *opposite* side.

If a calculus is more than 1 cm. in diameter, and especially if it is high in the ureter, a ureterotomy is usually indicated. An ureterotomy is not a serious operation in such an instance, and saves the patient a drawn out "stone labor." This applies particularly to the aged, infected, and those with poor renal function. However, if the calculus has shown a tendency to descend,



as in most cases, and a urological survey shows no impending danger to either kidney, watchful expectancy with repeated roentgenological check-up is in order. This applies to small stones or to recurrent stones in dilated ureters. Intravenous urography is often a valuable aid in estimating renal damage.

Many of the delivery problems of the urologist are similar to those of the accoucheur. Some of the obstetrical terms are descriptive. For instance, "passenger," "passage" and "powers" may represent the stone, the ureter, and the peristaltic power of the ureteral contractions, plus the very important hydrostatic pressure of the retained urine. If a patient in "stone labor" reaches an impasse, or if the pain is acute, an ureteral catheter passed alongside the stone may perform a version and permit the stone to descend by a smaller diameter. If the catheter is allowed to remain in situ, the ureter and pelvis drains, and the patient is given a respite. At times several catheters or bougies are passed by or to the stone to encourage ureteral dilatation. Frequently ureteral calculi are grooved or eroded, thus permitting a moderate flow of urine alongside. In such instances the symptoms are not acute, and "stone labor" may be induced by ureteral manipulations.

There are numerous methods in vogue to assist in the transureteral delivery of a calculus. Each case is individual, and the urologist has advantageously borrowed heavily from the art and mechanics of obstetrics in devising instruments and applying them. In general, to be successful, an instrument must produce a dilatation of the passage to accommodate the passenger. Instruments designed to ensnare or seize the stone have not been generally adopted.

If the ureteral orifice is very small, a ureterotomy should be done. In some instances, where the calculus is near the orifice and there exists considerable edema, light fulguration opens the tissue sufficiently to allow the edema to recede. Fulguration about the ureteral orifice must be performed with care, to avoid the formation of a cicatrix.

Demourskin has designed a rubber bag attached to a ureteral catheter that may be placed and distended immediately below a calculus in the ureter. He has also designed grooved sounds for the progressive dilatation of the lower ureter and reports favorable results with their use.

Lespinasse was one of the first to use laminaria or sea tangle in the ureter. He corked the ureteral orifice with a pellet of sea tangle, and allowed the obstruction to remain several days. His object was to dilate the ureter by hydrostasis, and thus permit descent of the calculus. This procedure had the disadvantage of being painful, long drawn out, and of producing occasionally unfortunate results during the removal of the pellet.

The Chevassu instrument combined a ureteral catheter with a segment of sea tangle. The early instruments of this design met with disfavor, due to the tendency of the sea tangle to remain in the ureter.

During the past year, ureteral bougies composed entirely of a selected sea tangle have proved successful in the author's experience. When indicated, they offer a means whereby the ureter may be gradually and gently dilated below a calculus, and include the ureteral orifice. In the presence of fluid, the bougie becomes flexible and mucilaginous, at which time it may be readily passed through a cystoscope and into the ureter. A No. 6 F. sea tangle bougie expands to No. 12 F. when allowed to remain in the ureter for several hours. There is a minimum of ureteral trauma, for the bougie requires but one placement. Following the placement and the removal of the cystoscope, an end of the bougie is permitted to project from the urethral meatus, so that it may be withdrawn later by simple traction. Upon removal, the expanded portion becomes an index of the ureteral dilatation. This dilatation persists for some time, as manifested by the gaping ureteral orifice. If there is no contraindication, the patient may exercise immediately following the removal in an effort to apply hydrostatic pressure and spontaneous delivery into the bladder. This exercise is similar to that performed in jumping rope.

In the preparation of this paper many details and data relative to the urinary tract and lithiasis were omitted in order to more briefly correlate certain pertinent facts that may be of aid in the recognition, management and treatment of ureteral calculi. The subjects of bilateral ureteral calculi and calculi in the one remaining ureter, together with unusual and freakish types, have been omitted purposely.

In conclusion, the following statements seem worthy of emphasis.

1. Urinary stasis and infection are important causative factors in urinary lithiasis.

2. Atypical symptoms may simulate those of the intestinal tract.

3. Soft calculi may not throw a roentgenographic shadow, and urinalysis may be negative or of little diagnostic value.

4. Most ureteral calculi that travel into the lower one-third of the ureter are amenable to cystoscopic instrumentation and delivery.

5. Surgical interference should not be postponed when there are definite symptoms of ureteral block, especially when the calculus is in the upper ureter and pelvic drainage impossible through a retention ureteral catheter. The general condition, age of the patient, size and location of the calculus are very important in formulating a decision. It is often easier on the patient to have a ureterotomy than a repetition of futile attempts at cystoscopic delivery.

6. A patient having passed or having been delivered of a ureteral calculus has not been completely treated until urinary stasis and focal infection have been eliminated. This responsibility should be shared alike by the physician and the urologist.

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#### DISCUSSION

Dr. Budd C. Corbus: Dr. Fillis is to be congratulated on this very interesting resumé of an important subject. With regard to pain, we are all prone to give morphine for renal colic. Morphine contracts non-striated muscles, but the stone does not make any progress. If we bear this in mind we would prescribe something that would relax the muscles. The sea tangle which Dr. Fillis mentions has apparently given good results.

The ureter is one of the most delicate organs of the body, and this should not be forgotten in treatment. The procedure of splitting the ureter and allowing nature to take its course is also in order. The old time surgeon operated on the ureter and took out the stone, or on the kidney and took out the stone, and the patient soon returned. As Dr. Fillis says, free drainage must be established.

Dr. J. E. Sanner: I was glad that Dr. Fillis emphasized that ureteral and renal calculi may make their appearance first with symptoms of gastro-intestinal disorders in many cases. Many laparotomies could be avoided if this were borne in mind, the real cause of the patient's illness discovered and eliminated.

#### RELATION OF THE RECTUM TO THE MANAGEMENT OF COLON DISEASES

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The treatment of the rectum in the management of colon diseases occupies an important place in the practice of the proctologist. There exists a physiological relationship between the rectum and the lower bowel that necessitates recognition and treatment of any rectal disorder to insure, and in some cases, to effect a cure of some colon abnormality. This is particularly true in the so-called "colitis." A recent article by P. W. Brown, and articles<sup>1-2</sup> by others, emphasizes how the "toxic," "mucous," or "spastic" colitis is in truth a dysfunctioning colon, and not a true colitis. This particular type of colitis occupies the largest group of colon disorders. The treatment of this type requires not only the usual colon management, but frequently requires rectal treatment to obtain the best end results, or to effect a normal colon function.

That a relationship does exist has been a matter of previous publications.<sup>3-7</sup> That such a relationship exists with a diseased rectum as a cause for a dysfunctioning colon has not been recognized sufficiently to interpret properly the particular group to which this class belongs. Certain cases may remain in the category of a true colitis or infection, and are not primarily of rectal origin. Other cases, manifestly ulcerated or infected, are merely benefited, if at all, by rectal treatment. It is the purpose of this paper to show how rectal treatment in certain cases is necessary for the proper management of the various types of colon diseases, particularly in the dysfunctioning colon, and to attempt to show why and how that relationship exists.

*The Abnormally Functioning Colon.*—A large number of the rectal cases that are seen in the office, on careful history give symptoms which if more pronounced could be interpreted as those of a dysfunctioning bowel, or the so-called "colitis." Many cases on the other hand are accompanied by severe symptoms significant of the abnormally functioning bowel.

The relationship that exists is further accentuated in a study of the symptoms produced by a rectal irritation as when caused by an opera-



tive procedure, or by a simple injection treatment. By such a procedure we are as definitely demonstrating the origin of this type of colitis as by any set experimental method. A review of various case histories shows that during a post-operative rectal convalescence, or following a medical injection, the following symptoms may arise:

1. An increased frequency of bowel movements may occur that are loose, soft, or watery, and that may be accompanied by the passage of considerable mucus.

2. Gaseous or cramping discomfort in any or all parts of the lower abdomen, purely colonic, may occur in typical fashion, that may be periodic, or constant, and may precede or follow a bowel movement.

3. Reflex gastro-intestinal symptoms may accompany the colon disturbance.

4. A previously deranged colon invariably becomes more abnormal, even to the point of thoroughly incapacitating the patient well on the road to convalescence.

5. Local discomfort always is accompanied by an increased difficulty in the passage of bowel movements, by pain of a transitory nature, by a feeling of protrusion, and often by gaseous discomfort.

6. Referred pain of rectal origin, indicative of the reflex disturbance provoked by a rectal irritation, has been observed in the lower back, down the legs or thighs, even to the ankles, or in the scrotum, penis, coccyx, or bladder. The frequency of the latter symptoms from a rectal reflex deserve more mention but they are not pertinent to the subject under discussion. The treatment in such cases often may be for the symptoms rather than for the cause.

Symptoms of the irritable or spastic bowel so produced may be explained in part as due to a reflex conveyed through the lumbosacral plexus, but in addition it is more than a possibility that the rectum besides being a focus of infection for disease other than colonic,<sup>8-12</sup> provokes a colitis or disrupts a normal colon by its disease. Certainly where virulent organisms predominate, any lesion suggests either a potential or an exciting cause for an existing disease of an infectious nature.

*The Pathological Anatomy of the Anorectal Region.*—The peculiarity of the nervous innerva-

tion of the anorectal region might explain the lack of recognition of the rectum as such a focus. Again the infrequent use of the sigmoidoscope and the anoscope or the failure to interpret definite disease, may in part be responsible.

Rectal symptoms may be lacking or symptoms of minor import to the patient. Such as a slight itching, a mild discomfort, or merely blood streaks, suggestive of mild hemorrhoids alone, may be present, and yet the infection may be marked. The pectinate line or dentate margin divides the sensory from the asensory zone. To become painfully or rectally sensible, infection and inflammation must extend externally. Though recognized, if proctoscoped at the time of the onset, characteristically the infection becomes diffuse, and may be non-palpable or but barely palpable. Throughout its course the infection may never be visible externally. Thus a cryptitis may result in a papilla and give no further symptoms; an abscess may remain entirely perirectal and drain out of its cryptic opening to become a small internal sinus, and yet harbor pus pockets nevertheless. Even without any accompanying localized pus accumulation, certain rectal diseases should be considered as infective and should be treated as of importance. Hemorrhoids are the most neglected as well as the most common offender of this type of infection. Periodically they become inflamed and diffusely infected, often being accompanied by cryptic pus plugs, yet giving only slight inconvenience to the patient. That they may result from trauma on a mechanical basis is true; but that a large number result as a perivascular infection undoubtedly also is true. That formation alone would therefore signify their importance as foci of infection in themselves. I am firmly convinced that hemorrhoids frequently are the precipitating cause for a more serious anorectal disease, and that hemorrhoids alone without any other accompanying anorectal pathology are most frequently the cause for many cases of an abnormally functioning colon in the so-called "colitis."

*The Rectal Treatment in the Abnormally Functioning Colon.*—The treatment of the rectum in spastic colitis, or mucous colitis, or an abnormally functioning colon, may or may not in itself relieve such a condition. It usually is an aid at least. The important point is that in

a large group of abnormal bowel conditions, not infrequently the treatment results in a complete subsidence of all symptoms whatsoever. To obtain such an end result, however, necessitates for the time being at least, the observance of all other factors entering into the picture, all of which play a part. Thus it is necessary to use as coadjuncts, diet, medication, and to maintain proper elimination by proper habits and instructions. It is important likewise to appreciate that the removal of any accompanying rectal pathology may not be the removal of the cause. An abnormally functioning bowel may result without question from upper gastro-intestinal abnormality, from a pelvic or intra-abdominal pathology, from extrinsic tumor masses, from nervous instability, neurosis, debility and many other sources too numerous to mention. But there is a group that is primarily rectal and remains as such regardless of treatment, unless the rectal pathology is removed. To remove the pathology partially, as is the general practice, does not suffice, but to remove it thoroughly and completely as with the Buie technique, which is not the usual practice, gives results in this group which are lasting and permit of no rectal recurrences save in the most exceptional instances. No continuance of diet or medication is necessary once the rectum is again a normally functioning organ; that is when the wound is thoroughly healed and the tissue changes completely resolved, or in certain selected cases where non-surgical treatment is indicated, and the diseased condition has subsided sufficiently again to allow the normal rectal function.

Presented in brief the following histories, which are only a few of a very large group, would signify the relationship in the abnormally functioning bowel and a rectal disorder or infection:

Mr. H. A. S. aged 39 years, Jewish; occupation, company manager. This patient was seen elsewhere in April, 1929, for gastric symptoms. He was told his symptoms were due to a "nervous stomach and nervous indigestion," and was given a diet which he states was given for this and low blood pressure. He returned in November, 1930, for added symptoms which were diffuse gaseous distention, particularly across the lower abdomen, a distress that was relieved by bowel movements. The bowel movements were hard, black and fragmentary, and the initial movement was explosive in character. He was intermittently constipated, at which time a sacroiliac and lower lumbar backache

would occur. He used no catharsis, but he did use an enema, one or two times weekly. In addition he complained of a perianal itching that had commenced in August, 1930, and periodically was severe enough to keep him awake at night. His diagnosis elsewhere was pruritus ani, and irritable colon. Local measures were used to the rectum with partial relief. Dietary measures were used that gave only partial relief to his intestinal complaints, viz., bland diet, regularity of habits, and agar agar daily, etc.

He first came to my office January 23, 1931, with a four-day history of pain that was perianal, and an abscess that had ruptured spontaneously on the day of his examination with a discharge of pus and blood, and consequent relief from pain. His other symptoms continued as stated.

A diagnosis was made of fistula-in-ano, mild hemorrhoids, and kraurosis ani. The general examination was essentially negative. Operation was advised with the added hope not only of relieving him of his rectal disorder, but also of ridding him permanently of his abnormally functioning bowel.

Operation was performed February 3, 1931, at the Evanston Hospital. The fistulous tract, the hemorrhoids, and the diseased kraurotic skin were removed, and the mucous membrane was brought into place at the proper level of the dentate margin. March 11, 1931, the wound was practically healed, the bowel movements were normal in every respect, with no medication or diet other than a general well balanced one. Seen on May 18, 1931, his condition was found normal, and the patient has since continued to be free from all of his former symptoms. He described his bowel movements as being fully formed, spontaneous and complete, occurring one time daily.

Dr. M. H. P. Aged 42 years, female; occupation, physician.

A previous hemorrhoidectomy was done elsewhere 10 years ago. An anal dilatation September, 1929, was also done elsewhere for "hemorrhoids," which followed rather severe constipation in the Summer, 1929. Symptoms of pain, blood, streaks, mild itching, and post-operative tags had been present since August, 1929. Symptoms of colitis had been severe and periodically had incapacitated the patient from her duties as a physician since September, 1929. She was seen in February, 1930. A sigmoidoscopic and proctoscopic examination showed large prolapsing papillae each 2 c. m. in size, edematous tags, mild internal hemorrhoids, and severe anal spasm. An operation relieved the severe bowel and rectal symptoms immediately, but an occasional slight gaseous discomfort periodically was present in the abdomen, which peculiarly accompanied an infrequent congestion and thickening of the nasal mucosa. The B.M.R. showed a rate of minus 12. Thyroid extract given in  $\frac{1}{2}$  grain daily doses entirely relieved both nasal and the very slight remaining colonic irritation.

Mr. R. W. C. Aged 53 years; occupation, company manager. After an extensive and thorough work-up in a Chicago Hospital, this patient was referred for



rectal treatment. He was being treated for the main part by a bland diet, bismuth powders, and agar agar for frequent attacks of abdominal distress, gaseous in character, transient belching, heartburn, etc. He had been diagnosed in view of his symptoms and findings as diverticulosis and spastic colitis. His symptoms were not relieved by these measures.

The rectal symptoms had been present three to four years, characterized by periodic pain following bowel movements and perianal itching of a mild degree. His abdominal cramps had been present an equal length of time.

The proctoscopic findings were severe anal spasm with pain, partially healed fissure, and hemorrhoids.

The patient refused operation which was advised, and carried on with a long drawn out medical course of injection treatment. Treatment commenced, April, 1931. Throughout his course of treatment, and to date, he has remained absolutely symptom free, except that immediately following each injection treatment he was apt to have some bowel distress.

Miss A. G. Aged 22 years; occupation, home girl. Complained of alternating constipation and diarrhea. The diarrhea occurred every few months and lasted usually about two days. She had been constipated over a period of years. Her diarrhea and abdominal symptoms were present only several months. The usual symptoms accompanied. Hemorrhoids had been present four to five years, periodically painful with bowel movements and bleeding on one former occasion. There was an occasional protrusion that required no replacement.

The examination revealed a spastic colon, and in addition mild prolapsing internal hemorrhoids, mild external hemorrhoids, prominent crypts, anal spasm, and evident infection in the hemorrhoidal zone. Her mother had suffered a rectal tragedy in previous years that left her incapacitated. Her father was a physician. This combination of circumstances coupled with the assertion that her "colitis" might be benefited by an operative procedure resulted in a consent on their part to submit to operation even though the hemorrhoids were mild and of the type that usually is treated symptomatically and regarded as insignificant.

An operation resulted in a severe flare-up of the colon with continued severe abdominal cramping pains, diarrhea, loss of appetite, etc., and resulted in the patient remaining bedridden for many days when ordinarily one is comfortable and ambulatory.

Operation was performed July 7, 1931. Since September 11, 1931, however, the patient has remained practically symptom free and is now eating normally and having normal and regular bowel movements.

Mr. O. H. Aged 27 years; occupation, gardener. Seen elsewhere, February, 1931, where irritable colon was diagnosed and a suspicion of amebic dysentery prompted a course of stovarsol and emetin which was repeated on his return to his home physician. There was no change in his symptoms in spite of a careful bland dietary regime.

He was seen in my office August 25, 1931, complain-

ing of an increase in the severity of his symptoms. In brief he stated that for 1½ years he had had an increased number of bowel movements accompanied by a gaseous discomfort preceding the movement. The bowel movements were fragmentary or soft and mushy, were accompanied by the passage of mucus, and varied from four to eight in number. Blood had first been noticed 6 months previous to the initial examination, and streaks had been noted occasionally since with his bowel movements. His appetite had been good until shortly before his initial examination when his symptoms became worse, so that in addition he complained of heart burn, occasional belching, particularly when hungry, and occasional eructation of food, not accompanied by nausea.

Nervousness and the loss of 20 lbs. in weight during the past 1½ years was complained of.

The sigmoidoscopic examination showed redundant hemorrhoids, considerable mucus, a healed indurated 1.5 c.m. valve ulcer, cause unknown, and an erythema of the mucosa. A biopsy of the valve ulcer, and examination of the mucus, feces, and in addition, two stool examinations, were entirely negative.

He was carried under observation for two weeks, care being taken to see that he followed a carefully worked out bland diet and bismuth subcarbonate, and an agar regime. The result was negligible.

Hemorrhoidectomy was performed September 3, 1931. One week following he was symptom free and having but one well formed and complete bowel movement daily. His wound at the present time is healed, his diet general, bowel movements regular and he remains entirely symptom free.

*The Relationship of the Rectum to Chronic Ulcerative Colitis.* It is a generally accepted fact that chronic ulcerative colitis is an ascending type of disease. Whereas certain cases are regional, the rectum is primarily for the most part affected.

Certain chronic ulcerative colitis cases would signify not only that the origin of this disease is rectal in most instances, but that the primary origin is anorectal.

1. The histories in three cases were that a fistulectomy with preceding abscess, etc., preceded the acute ascending ulcerations.

2. Anal soreness was an early symptom in several chronic ulcerative colitis cases, but may have been due merely to the rectal ulcerations.

3. Two post-operative hemorrhoidectomies gave findings postoperatively that might indicate a chronic ulcerative colitis in the bud. Both cases showed a thin anal ring of persistent granular tissue that bled on cotton swabbing and was entirely separate from the healed post-operative wound. One case pre-operatively showed rectal

lymphangitis. The other pre-operatively was a faulty Whitehead operation.

4. Associated or residual anal pathology was frequently present in the arrested or healed chronic ulcerative colitis.

5. A superimposed Bargen gram positive diplococcus infection was seen in a few cases of rectal or rectal and sigmoid disease where the primary pathology was clearly not a chronic ulcerative colitis.

*The Rectal Treatment in Chronic Ulcerative Colitis.* The associated or residual anorectal pathology that frequently accompanies a chronic ulcerative colitis is not only significant as a possible "feeder" to the ulcerative colitis, a source of infection and discomfort to the patient, a possible source of origin of the disease, and an undesirable complication, but it is of importance in the discussion because the care in rectal management in all cases of chronic ulcerative colitis, demands considerable care to avoid undesirable complications.

Surgery not only of the rectum but of the intra-abdominal organs and elsewhere is contraindicated in an *active chronic* ulcerative colitis as stressed by Bargen himself. The disease so highly infective, in addition to resulting in a draining sloughing infected wound or general sepsis, is also characterized by a markedly lowered resistance on the part of the patient, which hand in hand with the virulence of the infection results disastrously or fatally to the patient. Ileocolostomy, ileostomy, or rectal surgery are therefore to be avoided except where other measures fail or exceptional circumstances demand such procedures.

Rectal surgery after the subsidence or entire healing of chronic ulcerative colitis, may be most urgently indicated, particularly if it is to be surmised that the anorectal disease might in itself be responsible for a recurrence so common to the disease.

It was my pleasure to have as a visitor, Dr. Curtice Rosser of Dallas, Texas, who was inclined to believe that this possibility was more than a mere surmise. Dr. Rosser saw two cases of chronic ulcerative colitis while visiting with me in Chicago and Evanston. Both of these cases had much in common that would indicate the necessity for rectal intervention. One was a healed chronic ulcerative colitis that was post-operative following the removal of a small poly-

poid area in the lower rectum and an excision and repair of an anal sinus and sphincter abscess. The other was a case of seven years standing that was receiving an autogenous diplococcus vaccine for the first time with very beneficial results, but which came to the clinic primarily because of discomfort from two anal sinuses. The first case mentioned had a mild-flare-up of her ulcerative colitis immediately following the operative interference, but responded quickly to vaccine therapy, and within a very few weeks became symptom free again. The other case, after complete or nearly complete healing, should also have an operative procedure among other things to insure complete healing and freedom from rectal discomfort.

Other cases could be mentioned but these are illustrative of the need for rectal treatment in the management of this type of colitis.

*The Rectal Treatment in Gonorrheal Proctitis or Coloproctitis.* Inasmuch as this condition is almost always in the rectum or in the rectum and sigmoid, the condition usually is classed as purely rectal and the treatment likewise rectal.

It is not necessary to discuss the treatment of the various types of complications seen in this disease. It is not pertinent to any treatment associated with colon management excepting where such management is beneficial to the local lesion.

The necessity for thorough sigmoidal and rectal examination again should be emphasized in this condition. Sigmoid and rectal narrowing and stricture, a result of a previous gonorrhea, invariably is regional and usually is seen only in its later stage. Secondary ulcerations may accompany. These may be of the Bargen diplococcus and treatment should be in accordance.

One case seen, gave symptoms and findings of a perianal abscess, that resulted in a fistula. The rectosigmoid and upper rectum showed an early gonorrheal ulcerative proctitis on sigmoidoscopic examination, which necessitated active treatment before operation was advisable. The complete cure of the gonorrhea on the other hand, was only by fistulectomy.

*The Rectal Treatment in Megacolon.*<sup>13-15</sup> In megacolon rectal treatment has been given and suggested as important in the management. In certain cases<sup>16</sup> it may have a direct bearing on effecting a cure of the condition, though not necessarily in the severe case of a true congenital idiopathic dilatation of the colon.



A mild or severe acquired dilatation may accompany any obstructive lesion of the rectum. In certain mild cases seen, it came apparently as the result of an abnormally functioning bowel due primarily to rectal disease. Further investigative work may throw more light on an embryological contributory factor in the adult case. There is enough evidence in fact to signify that even the congenital idiopathic dilatation of the colon is many times an acquired abnormality. One rather mild case of a congenital idiopathic dilatation of the colon which gave a history of bowel movements since childhood that were as infrequent at times as to occur only two times a month, responded entirely to medical management. She has remained symptom free for practically a year's time. Her treatment could be considered partly rectal only inasmuch as among other things repeated colonic irrigations were given over a short period of time and in addition a mild anal dilatation was done on several occasions.

The treatment of choice for a severe congenital idiopathic dilatation of the colon however is given as lumbar sympathetic ganglionectomy<sup>17-18</sup> and ramisectomy; or else as recently advocated by Rankin and Learmonth,<sup>19</sup> section of the sympathetic nerves of the distal colon and the rectum on the supposition that a rectal abnormality in part was responsible for the resultant megacolon.

*The Rectal Treatment in Tabetic Colon.*<sup>20</sup> The tabetic colon is accompanied by a relaxed, atonic rectum, that assumes as in one case seen, a megarectum. The sphincter is atonic and the anus patulous. There is no need for rectal treatment.

*The Rectal Treatment in Amebic Dysentery and Other Parasitic Diseases of the Colon.* Certain parasitic infections as that of amebic dysentery require no rectal treatment for their care. The symptoms remain primarily colonic, because they result from a descending infection and are not ascending in type.

However, certain parasitic diseases give severe rectal symptoms and require rectal treatment to eradicate the disease and to render the proper prophylaxis.

A case of oxyuris vermicularis, or pin worm, was characteristic of the parasitic class. This came for treatment of severe pruritus. Anal cleansing and ointment were necessary to prevent reinfection and spread of the disease, as well as to give relief from the pruritis, although specific medication was the principal agent for final cure.

*The Rectal Treatment in Multiple Polyposis.* Rectal polypi often signify the existence of other polypi that cannot be visualized and are not amenable to treatment rectally.

The high incidence of cancer of the colon following multiple polyposis, the frequent association of polypi with carcinoma in the colon, and the frequent and early malignant degenerative changes in polypi, necessitate the careful removal of all polypi visualized through sigmoidoscopic and proctoscopic examination.<sup>21-23</sup>

Any adenoma should be considered as a highly potential malignancy and should be treated accordingly.

*The Rectal Treatment in Diverticulitis.* If we are to consider rectal and colon irrigations as rectal treatment in diverticulitis, such rectal treatment should be considered as highly important in the management of this condition. However, the indication for such treatment depends on many factors.<sup>24</sup> In the acute cases of diverticulitis of the sigmoid, surgical treatment may be necessary, but considerable care should be taken in judging the type of diverticulitis, the extent of its progress to abscess formation, and the consequent risk to the patient before surgery is resorted to. Hot irrigations given in the knee-chest position, in association with withdrawal of food or fluid by mouth, absolute rest in bed, the use of ice to the abdomen and other medical measures may be indicated in preference to surgery and, if done with care, in my own experience, have rendered later surgery unnecessary.

*The Rectal Treatment in Carcinoma of the Colon.* This subject should be included in this discussion of the management of colon diseases through rectal treatment because too frequently rectal treatment is given with the mistaken idea that such treatment is indicated, whereas a colon cancer in reality is present.

Fewer cases would be declared inoperable were more cases examined routinely. Not a few cases give no history of bleeding and yet have an advanced carcinoma. Bleeding should therefore

not be the criterion used to indicate the necessity for sigmoidoscopic or proctoscopic examination, although bleeding always indicates the need for such an examination. A barium enema roentgenogram examination of the large bowel should routinely follow the visualization of the lower segment of colon not only to more definitely localize and reveal added pathology, but in all cases where an abnormality of colon function exists, to rule out the possibility of cancer.

A most considerable advance in the recognition of early carcinoma of the large bowel may be obtained through use of the air inflation barium roentgenogram, recently advocated by Weber.

In closing, emphasis should again be given of the necessity for routine sigmoidoscopic and proctoscopic examinations in all cases of a dysfunctioning bowel, regardless of the cause of its abnormality.

### SUMMARY

1. Many cases of the so-called "colitis" are in reality an abnormally functioning bowel.

2. A large number of these cases have symptoms that are produced through rectal disease and consequent dysfunction. The symptoms of the dysfunctioning bowel may be produced through any artificially provoked rectal irritation.

3. The frequent neglect of the rectum as a focus of infection or as an irritative factor provocative of a dysfunctioning bowel is due not only to the infrequent use of the sigmoidoscope or proctoscope, but to the peculiarity of the nervous innervation at the anorectal region and the diffuseness of infection in this region.

4. The treatment of the dysfunctioning bowel frequently necessitates rectal treatment and in addition should require general dietary and medical management until normal rectal function occurs again. Other causes than rectal disease may be responsible for the abnormal function and should be borne in mind or treated in addition.

5. Reasons were advanced for believing that anorectal disease might precede and be the precipitating cause for a chronic ulcerative colitis infection.

6. Chronic ulcerative colitis, gonorrheal coloproctitis, tabetic colon, amebic dysentery and parasitic diseases of the colon, multiple polyposis, diverticulitis and carcinoma of the colon were discussed in their relation to the rectum.

7. A brief discussion was given regarding the treatment of the rectum and the relationship that it bore to the management of colon diseases.

### BIBLIOGRAPHY

1. Barga, J. Arnold: Conditions commonly called colitis. *Amer. Jour. of Roentgenology and Radium Therapy*, 25, 308-313 (March) 1931.
2. Brown, Philip W.: Colitis and so-called colitis. *Collected Papers of the Mayo Clinic and the Mayo Foundation*, 22, 158-163, 1930.
3. Asman, B.: Rectum in Its Relation to Digestive Disorders. *Ken. M. J.* 21, 222-226, 1923.
4. Hinckle, W. A.: The Terminal Bowel and Systemic Disorders. *Ill. Med. Jour.* Jan. 58, 306-308, 1930.
5. Laplace, Ernest: The Rectum in its Relation to Gastrointestinal conditions. *Amer. Jour. Gastro-Enterol.* 1 No. 2—1-4, 1911.
6. Moon, L. E.: Proctitis and Its Relation to Colitis. *Neb. Med. Journal*. 15, 114-117, 1930.
7. Smith, H. C.: Conditions Following Infections of the Rectum. *Neb. Med. Journal*. 9, 360-363, 1924.
8. Dupre, W. H.: Acute Proctitis Causing General Peritonitis. *Brit. M. Jour.* 2, 1027, 1922.
9. Fansler, W. A.: Rectum as a Factor in Chronic Focal Infection. *Minn. Med.* 7, 110-112, 1924.
10. Jackson, R. H.: The Correlation of Proctology and other Specialties. *J.A.M.A.* 85, 930-942, 1924.
11. Soper, H. W.: Mucosa of the Rectum and Sigmoid Colon as a Focus of Infection. *Boston M. & S. Jour.* 176, 766-768, 1917.
12. Davis, E. C.: Arthritis of Anorectal Origin. *Med. World*. 48, 223-226, 1930.
13. Blake, V. H.: Hirschsprung's Disease Treated by Rectal Tube. *Proc. Royal Soc. Med.* 23, 158, 1930.
14. Wade, R. B.: Congenitally Dilated Colon or Hirschsprung's Disease. *Jour. Coll. Surg., Australia*. 3, 3-19, 1930.
15. Bartle, H. J.: Megacolon—A Resume of the Literature and Report of a Case. Ramisection proposed as a Form of Treatment. *Amer. Jour. Med. Sci.* 171, 67-81, 1926.
16. Judd, E. S., and Adson, A. W.: Lumbar Sympathetic Ganglionectomy and Ramisection for Congenital Idiopathic Dilatation. *Tr. A. Surg. Assoc., Phila.* 46, 159-178, 1929.
17. Judd, E. S., and Adson, A. W.: Lumbar Sympathetic Ganglionectomy and Ramisection for Congenital Idiopathic Dilatation of the Colon. *Ann. Surg.* 88, 479-498, 1929.
18. Rankin, Fred. W., and Learmonth, Jas. R.: Section of the Sympathetic Nerves of the Distal Part of the Colon and the Rectum in the Treatment of Hirschsprung's Disease and Certain Types of Constipation. *Ann. Surg.* 92, 710-720, Oct., 1930.
19. Kallet, Herbert L.: The Rectal Manifestations of Tabes Dorsalis. *Trans. of the Am. Proc. Soc.* 155-160, 1930.
20. Hegner, Root, and Augustine: Animal Parasitology with Special Reference to Man and Domesticated Animals. The Century Co.
21. Fansler, W. A.: The Origin of Polypi of the Large Bowel. *Jour. A.M.A.* 96, 1969-1970, 1930.
22. FitzGibbon, G.: Polypi of the Large Intestine; Study of Histogenesis of Carcinoma of Colon. *Proc. Staff. Meet. Mayo Clinic.* 5, 157-159, 1930.
23. Barga, J. Arnold, and Rankins, Fred W.: Multiple Carcinoma of the Large Intestine. *Ann. Surg.* 91, 583-593, 1930.
24. Mayo, William J.: Diverticula of the Sigmoid. *Ann. Surg.* 92, 739-743, 1930.
25. Brennemann, Joseph: Simple Congenital Anorectal Stricture with Megacolon in Early Infancy. Report of Six Cases. *J.A.M.A.*, Aug. 27, 1927. Vol. 89, pp. 662-666.

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## THE CHILDHOOD OR JUVENILE TYPE OF TUBERCULOSIS\*

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It is now more than two decades since many of the foremost exponents of the tuberculosis control advocated a rational tuberculosis therapy and leading internists, like Hamburger, v. Pirquet, Grancher, Williams and others of that well known school, taught that if we could carefully examine all the children for tuberculosis—both infected and the diseased; this to be followed by appropriate care and suitable treatment, that in about twenty years both the tuberculosis mortality and the morbidity would be reduced to a minimum, would in part be stamped out; if not stamped out entirely it would at least be somewhat reduced. The twenty years have now passed. Have we made any perceptible progress in the reduction of the tuberculosis mortality and morbidity from our community? We have undoubtedly progressed along these lines, but most inadequately, because an examination of all small children, from infancy to the school age, including the "teen" age, could not be accomplished; in fact, but a very small percentage of the children throughout the land were examined during these twenty years, and taken care of. Were we remiss in our duty to stamp out this social plague? Perhaps!

About ten years ago much stress was placed on diagnosis of tuberculosis in what is known as the "teen" age, the school period, when the glands about the hilum near the roots of the lungs, often become both infected and diseased. The involvement of these glands is usually designated as the primary form of tuberculosis, the childhood type of the disease, and the involvement of the lungs proper, as the tertiary form; this most frequently in adult life, being the aftermath of the very early infection and subsequent disease of these glands in childhood life. But why wait for the child to arrive at the "teen" age to make this diagnosis? From the beginning of life, from very early infancy up to the first period of childhood, the kindergarten age, the examination is just as important, per-

haps more so, than a few years later, and here—at this early period—in infancy and up to the fifteenth month the tuberculin application in the form of the Moro ointment is the method of choice, and as the child approaches the kindergarten age, the v. Pirquet should be given, and on all those children giving a negative reaction following a v. Pirquet, an intradermal or Mantoux test should be made, because observations have shown that about 65 per cent. of all children in large cities react to the v. Pirquet test and out of those who do not react at least 15 per cent more react to the intradermal test, making a total of 80 per cent. reactors.

This childhood type of tuberculosis is usually typified in infancy or child-life. It is the infection and subsequent disease which we so often find about the root of the lungs, the regional glands, about the trachea and bronchi; this is designated as primary tuberculosis, the adult form of tuberculosis is only occasionally found in child life; however, in some instances the more grave adult type is found and the less severe, the juvenile type, is sometimes found in adults.

Now as to the pathology of this childhood or juvenile type of tuberculosis. The infection usually has its inception in early infancy or in child life, and whereas, if only a few tubercle bacilli gain entrance into the human economy may bring about a relative immunity; it being a "Godsend in disguise," a large or massive infection, when bacilli in large number enter the human body, may then produce a more or less rapid tuberculous process and an early death. As in more than 85 per cent. the infection is brought about by the inhalation of air through the upper air passages; this being the chief portal of entry, this then, the aerogenous or bronchogenic route, is the usual route of predilection to human infection. Tubercle bacilli are carried with the respired air into the bronchial tree, find lodgment in the pulmonary parenchyma, usually subpleurally, at which point they may gradually increase in number and the lymph flow from this primarily involved pulmonary tissue is towards the nearest, the regional glands, and the bacilli are deposited there. If the resistance of the child is good, then the bacilli may be deposited for a greater or lesser period and no further pathology may be observed; usually, how-

\*The signs and the symptoms. Diagnosis. Prognosis. Prophylaxis. Therapy.

ever, they increase in number, may be walled off or undergo calcification and the result of this process gives the physical findings in and about the hilus region; this also gives the increased shadows on the roentgen plate, on x-ray examination. These are the findings described as the childhood type of tuberculosis. Now, as this first or primary infection in the pulmonary tissue undergoes fibrosis, hardening or calcification, it is now shown on the roentgen plate as dark circumscribed shadows described as the "Ghon nodules." In adult life pulmonary tuberculosis is usually a secondary aspiration process from these peribronchial glands. Further we notice that if the primary lung involvement is in the right pulmonary tissue, then the regional glands about the hilum, the peribronchial glands, of the right side become secondarily involved, and if from the left lung then the mediastinal glands on the left side are involved. Crossed infection, that is, right-sided primary lung involvement, and left-sided hilum gland enlargement, as a secondary infection has never been observed. If only a single "Ghon nodule or focus," the primary lesion of the primary infection, is observed in the pulmonary parenchyma on the right side, then only the right sided, the regional glands about the right hilum become secondarily involved, and vice versa. The Ghon nodules may vary in size, usually from pinhead to the size of a pea; these may eventually become completely absorbed; it is owing to this fact that they are not always demonstrable on the roentgen plate. The child becoming infected from an open case of pulmonary tuberculosis, usually the bronchial glands are primarily infected and later become primarily diseased; this is designated as primary tuberculosis, and this is the usual forerunner of pulmonary disease in adult life, the tertiary form of the disease.

*The Signs and Symptoms of Tracheo-Bronchial Gland Tuberculosis.* The signs may be quite characteristic, or there may be an absence of all objective signs. Pain in the anterior chest and posterior interscapular backache may be much complained of. A painful cough with an expiratory stridor, hollow, barking, metallic, whooping cough-like is often noticeable. This piping, high, expiratory murmur is much increased on exertion. There may be emaciation, gastric and nutritional disturbances, discharges

from the ears or eczematous patches about the ears, multiple abscesses, slight fever and bronchopneumonic areas about the bases of the lungs. An expiratory dyspnea, a harsh and loud sound, expiration much prolonged, inspiration scarcely audible (in ordinary whooping cough the inspiratory sound is much prolonged, the expiratory murmur shortened) and inspiratory contractions of the chest, due to pressure of the enlarged endothoracic glands upon the trachea, some emphysema of the lungs, cyanosis, and in long protracted cases clubbing of the fingers usually bespeak primary or peribronchial gland tuberculosis. In spite of the frequency of bronchial gland tuberculosis in the first and second, and perhaps up to the fourth and fifth year of child life, the kindergarten period, these characteristic signs are but seldom observed and endothoracic gland enlargement is during early child life infrequently diagnosed.

*The Diagnosis of (Primary) Tuberculosis of the Intrathoracic, the Perihilar Glands.* In pulmonary tuberculosis in the adult we make use of the classic method of physical examinations by inspection, palpation, percussion, auscultation and roentgenology, and here, in the interpretation of the signs elicited over the area of enlarged or tuberculous peribronchial glands we again make use of this same well tried method of physical examination.

(A) *Inspection:* We may find a frail child with a sunken contracted chest, dilated pupil on the affected side, due to pressure upon the sympathetic from the swollen glands, unilateral sweating or flushing of the face, conspicuous temporal veins on the affected side; skin usually dry and covered with a downy growth of hair.

(B) *Palpation:* If the little patient standing before the physician, is placed so that the doctor can comfortably place the fingers of his right hand along the spine, the fingers of the left hand on the sternum and now, if pressure is made from the second cervical down to the seventh or eighth dorsal spine, in an up and downward movement, and while this is being done, if the doctor watches carefully the facial expression of his little patient, he will often observe that when a certain spinous process is pressed that the child will flinch, as if in pain. This is often described as spinalgia, as first pointed out by Petruschky.



(C) *Percussion*: On the normal child the percussion note may be dull and osteal down the spine, usually to the second thoracic vertebra and pulmonary below that point, but a dull and high note to the fifth or seventh dorsal spine is always pathological. This dulness may extend a few centimeters from each side of the spinous processes as far as the paravertebral line, and over this area the tactile fremitus is then also increased.

(D) *Auscultation*: If we listen carefully with the stethoscope along the spine of the normal child while breathing, beginning upon the neck over the third or fifth cervical vertebrae, we will note distinct bronchial breathing, and as we proceed downward it becomes fainter, and is nearly lost at the second thoracic spine, but in the child with enlarged peribronchial glands the tubular sound heard up in the neck is carried down to the sixth and seventh dorsal spine and beyond. This is described as spino-tracheal breathing, and the whispering voice, which is also heard in the presence of endothoracic gland enlargement down to the sixth or seventh dorsal spine, is spoken of as D'Espine's sign.

O. de La Camp considers the physical possibility of diagnosing bronchial gland tuberculosis, chiefly the tracheo-bronchial, situated at the hilum. The symptoms are variable, and are chiefly present in pronounced cases, although the principle symptoms of gland enlargement are usually present. The characteristic dry, brassy cough, an expiratory dyspnea, slightly husky voice, difference in the pupils, pain between the shoulder blades, pain on pressure from the second to the seventh dorsal spine, and over this area both the whispering and the loud voice are intensified and the percussion note a relative dulness to the sixth or seventh dorsal spine, on light or moderate percussion indicates peribronchial gland enlargement.

(E) *Roentgenology*: Roentgen-ray and tuberculin in the diagnosis of the childhood type of tuberculosis. An x-ray plate is the objective representation of that which can be seen by the Roentgen ray. A radiographic examination is often of great aid and may, in some instances, lead to an immediate diagnosis. It is especially valuable in children at any age, where the clinical examination is often difficult and the findings misleading.

The statement made by many good clinicians that the childhood type of tuberculosis can be determined ONLY<sup>1</sup> by means of the tuberculin test and the roentgen ray is misleading and does not always hold true. In the presence of evidence that many good diagnosticians do make the clinical diagnosis of tuberculosis in children without the use of the x-ray or tuberculin is sufficient proof. Should the general practitioner assign all his cases of childhood disease at once to a roentgenological technician for an x-ray examination, and to a tuberculosis nurse for a tuberculin test? Is the technician and the nurse to make the diagnosis for the doctor? We lay great stress on teaching the young medical student his physical diagnosis; teach him how to elicit and interpret the sounds heard within the chest wall, and after this teaching is fairly well grounded, the young doctor is advised to refer all his chest cases at once to an x-ray technician and a nurse, as the only ones capable of making a correct chest diagnosis. A good and careful clinician can make a fairly accurate diagnosis on the living body; this may then be corroborated by a roentgenological examination. I refer to the childhood type of tuberculosis, the disease of the peribronchial glands, the usual forerunner of the adult type of tuberculosis. With the x-ray the diagnosis of peribronchial gland tuberculosis can very definitely be demonstrated, but it is possible in six-sevenths of all cases to make a correct diagnosis without the x-ray by means of physical examination alone.

It is freely admitted by many roentgenologists that exact standards for the x-ray plate in the normal can not always be determined; hence it must naturally follow that such standards of perfection can not always be determined for the pathological chest. On close observation we find that evidence of a pathological process in the case of one technician may indicate an entirely different process by another. With a clinical history, a careful physical examination and laboratory findings one can arrive at a very definite conclusion as to a proper interpretation of a doubtful picture.

Years ago, while conducting a Children's Clinic, a leading internist, internationally known—a past president of the A. M. A. visited

1. The word "only" as given above—appears always in large type.

my clinic and the problem which interested him most at the time was "Doctor, do you see many cases of pulmonary tuberculosis in children here in your clinic?" My reply was "that I do not and that only very occasionally do I see a case." "If you do not see them, then where are they?" I replied "that most of them are found in the text-books and in the writings of the supposed specialists on childhood tuberculosis." "I believe that you are right—for in all my years of experience I have seen but few cases." As in childhood tuberculosis the intrathoracic glands about the hilum are usually the chief form of tuberculosis at that age, we find that much stress is placed on the use of an x-ray examination, and on the tuberculin test but not a word about diagnosing the presence of enlarged or tuberculous mediastinal glands by physical examinations, and as for therapy and prophylaxis no mention is made; whereas, these latter are by far the most important factors in the care of the tuberculous child. By means of the physical examination of inspection, palpation, percussion and auscultation, so admirably in use when examining an adult for a suspected tuberculosis within the thoracic cavity; with these same physical tests, if carefully practiced and correctly interpreted, chest findings about the hilum can be made with a degree of accuracy equal to the findings in the lungs. We do not deny that the roentgenographic plate is a great aid in our diagnosis of enlarged intrathoracic glands, but this method of examination should not be given the preference, and exclude wholly the old well-tried and often applied physical method.

*Prognosis:* The prognosis of tuberculosis in childhood is not as grave as it is in infancy; here the process is longer drawn out, and exacerbation and remissions are frequently observed, infection may be more mild. In the second child age—the so-called "teen" age—from 5 to 15, the prognosis in tuberculosis is still more favorable. At this period the experience of the profession tends to prove that pulmonary tuberculosis has a lessened tendency to progress than in the first year of life, or again later in life, after puberty. It is quite infrequent to observe, during the school age, a florid pulmonary tuberculosis and Grancher observed a decided lessening of the mortality rate between the 5th and 12th year, due to an acquired relative immunity and others

have also observed a lowering of the mortality rate from 4 to the 15th year. The tendency to a generalization of the disease becomes less and assumes a more chronic form. In these years—from 5th to 15th, the infection tendency is lessened; consequently the tendency to the disease also becomes less. It is not infrequent at this age to see a chronic form of pulmonary tuberculosis with a decided tendency at healing as in the adult. Our own observations are that pulmonary tuberculosis is very infrequent in the school days or early child life; it only begins to make its presence definitely known as the child approaches puberty. In the early school days other forms of tuberculosis are more frequently seen and bone and joint tuberculosis, tuberculosis of the intestinal tract, tuberculosis of the kidneys, the cerebrum and other organs, but pulmonary very seldom.

The prognosis of pulmonary tuberculosis is most unfavorable during the first year of life—that is, in infancy, the nursing period—the period from the first day of babyhood to about the end of the 15th month, and the earlier in infancy the infection, the graver is the outlook; here often an early generalization of the tuberculous process may be observed. It also is unfavorable during the first period of child life—that is, during the years from the middle of the second to the end of the 4th, perhaps the 5th, or the kindergarten age, to the beginning of what may be called the pre-school age, it becomes more favorable as the child advances toward this pre-school age. Again it is most unfavorable with the beginning of puberty—about the 15th year of life—the beginning of the developmental period and extending through to the age of full development and up to about the 25th to 35th year, becoming again less favorable after the age of 60—about the period of beginning senility and extending throughout the senium.

As to the years of a more favorable prognosis, we may state that relatively the years of the second period of child life, that is, from about the 5th to the 15th year, before puberty, is the most favorable. This also is known as the period of childhood disease, embracing the pre-school, the school, and the high school age, or what is now so frequently mentioned as to the "teen" age, including the 10 years from the 5th to the 15th; the second period of child life. The other, more



favorable period of life is that of full body development—from about the 35th to near the 60th. After the 40th year the acme of body resistance has reached its highest point, which is then usually maintained for years, and the tuberculous process, if present, assumes a very slow and very chronic form, with little exacerbations and remissions.

Tuberculosis in childhood is usually a mediastinitis, perhaps a polyadenopathy—a disease of the mediastinal, the regional glands about the hilum of the lungs. In some instances a miliary form of the disease may be the presenting picture, an early generalization; this from a caseating gland emptying its contents directly into the blood stream. This then may be accompanied by a meningeal, abdominal form; in fact, any organ and tissue may become more or less involved. This, the mediastinal form of the disease, is usually spoken of as “childhood tuberculosis.”

*Prophylaxis:* This is to prevent the infection of the child and to increase its resistance. It becomes the first duty of the mother to protect her infant from becoming infected, and after infection it becomes her duty to prevent the child from becoming tuberculously diseased. It is here when the good old family doctor's duty to the small child comes into play—must be exercised. The well known axiom of v. Behring “Pulmonary tuberculosis in the adult is simply the last strain of that song which was first sung at the cradle” brings pulmonary tuberculosis, as is observed in the adult, back to childhood. Tuberculosis is primarily a child disease; it is acquired in childhood, is preventable in childhood, should be treated in childhood, and can be arrested in childhood. With the introduction of tuberculin by v. Pirquet, as a specific diagnostic measure, the early infection and subsequent tuberculous disease was again definitely placed in childhood, and all this only goes to prove that suitable therapeutic and health measures directed against the disease must begin in childhood; hence, to increase the resistance in our little patients we must insist upon good housing conditions, wholesome fresh air, and good nourishing food, sufficient rest, a well regulated life, with much out-of-door living, frequent baths, much sunshine, and in the open—and under constant observation of the good old family doctor. These are the factors necessary to insure the

child's resistance and inhibit the outbreak of a tuberculous disease in later life.

Infants under two years of age should be protected against infection, and all children should be immunized against tuberculosis by inoculation before reaching puberty, and here it may be stated that immunization is usually brought about in the child with good resistance by coming in contact with minute quantities of the tuberculous virus; this then may be designated “the inoculation method.” It is to be noticed that in about 5 per cent. of all forms of tuberculosis in childhood that the bovine tubercle bacillus is the activating factor.

#### TREATMENT OF THE CHILDHOOD OR JUVENILE TYPE OF TUBERCULOSIS

*General Therapy:* Many years ago the great Sir William Osler tersely stated that “without a thorough knowledge of tuberculous disease no physician is adequately equipped to engage in the art and practice of medicine.” This statement made by this great teacher is particularly applicable in the care and treatment of the childhood type of the disease. “To recognize it early and to treat it early” must be our watchword.

As soon as the diagnosis of tracheo-bronchial lymph node disease has been definitely made—no matter how well the general condition of the child may appear it becomes the imperative duty of the family doctor to institute proper therapeutic measures, and a symptomatic treatment under hygienic rules is here most advisable, and the earlier the diagnosis is made the better is the outlook for the child; this in early infancy—in the first period of childhood—even before the “teen” age so much advocated in late years as the “danger” period. The child must be under constant observation and care from the time the diagnosis is positively made throughout all the years of early childlife—so as to immunize the child that it can be safely carried through the greatest period of danger—the years of puberty and beyond.

The anemic child to increase its resistance and raise its immunity, besides a suitable aliment, the administration of the Syrup of the ferrous iodide and glycerine, in equal parts, and here direct the nurse to administer to the child half teaspoonful doses in a spoonful of water three times a day—after meals. The giving of cod

liver oil in a palatable form—so plentifully now on our markets, is a most suitable medicament and aliments rich in vitamins—like eggs, butter, milk and salmon, can not be too highly endorsed, or some of the many vitamin rich pharmaceutical preparations may also be given. A most dependable remedy is the ordinary U. S. P. Tincture of iodine when given in a little milk in 5 to 10 drop doses after each meal, and Fowler's solution of arsenic in pronounced anemia in 2 or 5 drop doses, after meals, is a sovereign remedy. Cathartics, as a rule, should not be given. Regulate the child's bowels by an appropriate diet, and here the cereals and various breakfast foods can be highly recommended. Of the many therapeutic remedies for the treatment of childhood tuberculosis none can excel the use of a dependable tuberculin dilution. To tuberculin must be assigned the most conspicuous place for the treatment of peribronchial gland tuberculosis and palpable cervical tuberculous glands from bacillary infection by way of the mouth, teeth or tonsils have been noticed to disappear as if by magic.

*The Specific Therapy:* A specific tuberculin therapy, according to good authorities, is most desirable. This, the specific method of treatment so ably tested by Petruschky, is best applicable from the first to the sixth year; here, following the medication is a suitable condition of improvement, an increase of body weight and a lessening of the bronchial catarrh. Some, equally well informed, advocate the beginning of the specific treatment with the school age, this to be maintained more or less throughout the whole school years. In the milder forms of the disease it is very noticeable that an extended specific treatment offers the best method of favoring a healing of the tuberculous process. In the more grave forms of the disease—like acute pulmonary tuberculosis, this treatment is strictly contra-indicated. In this fight against tuberculosis it is the primary state of this disease that we must consider most seriously—this in childhood tuberculosis, so that we may in later life inhibit the pulmonary form.

Petruschky, of Danzig, many years ago advised the use of tuberculin as a topical application, by inunction, in the use of his "Linimentum Tuberculini Compositum." This was then highly commended by leading phthisiotherapeu-

tists in Europe. Now, for more than twenty years I have used, with gratifying results, a 1 per cent. solution of O. T. in glycerine, by inunction. This can very readily be prepared by any apothecary, or by the doctor himself. A clean, empty 3-ounce graduated prescription bottle, this usually holds 100 C.C. a 1 c.c. of O. T., pure glycerine, and a few C.C. of distilled water. Take 1 C.C. of Koch's original O.T.: pour it into the empty 3-ounce bottle. Rinse the now empty 1 C.C. bottle repeatedly with a few C.C. of distilled water, shake well, and now add 15 C.C. of glycerine. Shake, and when thoroughly mixed, add 30 C.C. more of glycerine, again shake well, then add 30 C.C. more and when well mixed add sufficient glycerine to make 100 C.C. or fill the bottle to within  $2\frac{1}{2}$  centimeters from the mouth of the vial, and mix intimately. This now is a 1 per cent. solution of old tuberculin in glycerine and of this dilution, with a medicine dropper, place a drop upon the right forearm of the child and with the middle finger of your right hand rub it well into the child's skin till all has been absorbed. This usually will require but a few seconds. The next night do not apply tuberculin, as you did the previous evening, but the following evening repeat the process. In other words, apply the tuberculin every alternate night and always make the application to a different spot on the body. Before beginning the tuberculin inunctions obtain an accurate weight of the child, and after applying the medicine for about three months again take the weight and report these findings to your family physician. Of this tuberculin-glycerine mixture do not dispense large quantities—never more than 10 to 15 c.c. or  $\frac{1}{4}$  to  $\frac{1}{2}$  ounce; this quantity if used in one drop doses every other night will last for months. We have now dispensed many hundreds of  $\frac{1}{2}$ -ounce vials, half filled, of this tuberculin-glycerine mixture to many hundreds of children and we insist very vigorously in its proper application. Occasionally we discontinue the tuberculin medications for a few months and in the interim the child is put on a ferrous iodide and glycerine medication, equal parts, and the parents are directed to give the child a half teaspoonful dose three times a day, with water, after the meals.

*Clinical Observations and Findings:* We began the conduction of a chest or health clinic during the winter months, beginning in the late fall of



1928 and continuing up to the present time (spring of 1932). These clinics were given weekly occasionally bi-weekly. In this work we were ably assisted by two well-trained nurses, who during that time gave a total of 862 tuberculin tests, 60 Moro or percutaneous, 160 v. Pirquet or cutaneous, and 642 Mantoux intracutaneous or intradermal. The Moro test was applied only to infants or very small children—up to the third year of life, the v. Pirquet usually from the third and up to the sixth year, and the Mantoux to all over the age of six and up to the full adult life; in a few cases, even in the senium. In all young patients, at any age, a careful physical examination was made along the spine to the seventh or eighth dorsal vertebrae and in all cases where a physical examination warranted a tentative diagnosis of mediastinal gland enlargement was made. In every adult examined, besides making a careful chest examination for pulmonary disease, a physical examination along the spine was made the same as in the children; in many a diagnosis of pulmonary tuberculosis was made, and in addition the presence of enlarged peribronchial glands was demonstrable. To all the children who were examined those of the first period of childhood, as well as those of the second, the “teen” age, and who gave a positive tuberculin reaction the tuberculin-glycerine inunction method was recommended. This form of treatment was not continued indefinitely but after a few months of a tuberculin impression, say, for about four months, was then discontinued for a month or so, and then again resumed. Here, by this method of tuberculin medication, under the spillway of the ultraviolet-rays many gratifying observations were made. In not a single instance have we observed any untoward results, and with the hearty cooperation of parents or guardians, we are looking hopefully forward to a lessening of the tuberculosis mortality in the ages of puberty and beyond. In the examinations of these many children we found only two cases in which the adult type of the disease was present; of these one child has since died of progressive pulmonary tuberculosis, the other child now entering womanhood is holding her own, returning for a reexamination once in three or four months. The Moro reactors were all small children, mostly infants; the youngest only three

months old. Of the children to whom a Moro test was applied, 60 in all, 44 gave a negative and 16 a positive reaction. Infants who react very actively to a Moro test must be constantly under observation; in all probability must be considered more than simply infected, perhaps already slightly diseased. Of the v. Pirquet reactors, 160 in all, 81 positive, 79 were negative, all were children from the third to the sixth year, and a Mantoux test was applied to 642 patients, of whom 447 gave a positive reaction and all the reactors of all these groups were directed to the roentgenologist for a roentgenogram to confirm our findings.

#### SUMMARY

From puberty to the age of full body development, that is, from the sixteenth to the thirty-fifth or fortieth year, Cornet's truism is usually noticeable—that “in pulmonary tuberculosis the younger in years the adult individual the graver is the prognosis.” Hippocrates early observed that from 16 to 35 is the most grave and all modern clinicians agree that the developmental age, from puberty to about the 35th year, shows the greatest mortality rate. It seems as if the tuberculosis mortality rate begins to rise with the fifteenth year, that is, after the “teen” age—at puberty. At this period there is greater tendency to a more rapid progression of the pulmonary process with but little tendency at any improvement or healing. It has also been observed in general that after puberty it is much more difficult to contract tuberculous infection or disease, but that infection, if contracted after puberty, becomes more grave, is a more dangerous affair.

If the infant, the child, the youth, and later the young adult, is safely carried over to full adult years, then the infection will be so well neutralized as to remain in perfect quietude. A so treated child will have learned its lessons well, will be a good pupil to teach the principles of hygiene. Being constantly under the supervision of the family doctor does not mean that the child must continually be drugged and must always take medicine. Apply here as in everything else—common sense. See the patient frequently, inquire about the health of the little patient, about the weight, the mode of living, and also occasionally make a thorough chest examination, as well as an occasional roentgeno-

graphic picture as a comparison with a previous picture taken. While under the family doctor's care these little patients must always be encouraged, must be told that the patient is only under observation and not actual treatment. Throughout the years of the use of tuberculin, in the form of glycerine inunction in the younger years and in young adult, or full adult life, a small tuberculin impression, say, a millimilligram, once or twice the month, will be followed by most favorable reports.

With the use of tuberculin we activate a tuberculin immunity, for with this medicament a tuberculosis immunity cannot be acquired. The use of tuberculin in the tuberculous in minute doses only inhibits the growth or spread of the process; this, then, favors a healing tendency. Our conception, in the use of this dermal, local or surface application or vaccination, the tuberculin-glycerine medicament, is to make the harbored tubercle bacilli less pathogenic; this ultimately brings about an artificial immunity, a desensitization—this, with increased resistance.

During these years—now in the fourth—we have probably examined at the City clinic more than 600 children. Our interest centered principally in the child group of 60, the 160 which receive the v. Pirquet test, all in the childhood group, and to approximately 400 children of the 642 to which a Mantoux test was given. This included all children from babyhood to past the "teen" age. Of the infant type the Moro test was positive in 16; of the first child group 81 gave a positive v. Pirquet, and in about 300 children of the second group a Mantoux test was positive—a total of about 400 reactors are now under observation.

If this class of reactors can safely be carried through puberty and beyond perhaps past the 25th year, the impressions made on these individuals for better hygiene will be a lasting one and we can confidently look forward with hope that this disease, tuberculosis, can in a measure be stamped out. This was the wish and hope of those good teachers who predicted that if tuberculous disease were recognized early, in youth, that it could be fairly well stamped out in about twenty years.

We are now passing on many susceptible children tuberculously infected, and as they are diagnosed are at once placed into this large and

growing group of reactors, so that in the following years we will have a large class belonging to this childhood type of tuberculosis. The vigilance of our nursing force is strictly maintained; health topics are continually mentioned and the application of the tuberculin-glycerine inunction is our chief weapon in this fight against childhood tuberculosis. We are looking forward to the time when we have registered many hundred children in our group of reactors; then we have positively demonstrated that when this childhood tuberculosis is early recognized and with early care is carried through the early child period, has passed the "teen" age successfully, that then the period of greatest danger is overcome; that now the child is successfully immunized so as to pass the period of early manhood and womanhood and up to adult life. Under a strict regime we may be able to report in the coming years a lessening in the tuberculosis mortality and morbidity from our constantly growing group of childhood reactors.

At the very first visit to the clinic and after the child is examined, and we have made our diagnosis as to the positivity of the infantile type of tuberculosis, we explain to the parents or guardians the great danger to which the child will be exposed in later years; that for the present the child is in no immediate danger, but as life goes on and the child reaches puberty that then is the greatest danger of becoming tuberculous diseased, but if carried safely beyond and up to the 25th year that in all probability the individual will remain free from tuberculosis. At every visit of our nurse to the home, and at every visit of the parents to the clinic, the nurse again and again repeats the vital importance of carrying the child safely through puberty. This is their watchword for the prevention of pulmonary tuberculous disease. The nurses are at all times fully conversant with the condition of the children under their care.

We are now looking forward to the coming years with a great deal of hope and assurance that all of the children who have passed puberty and beyond, to the beginning of full body development, are in perfect health and safety—free from the pulmonary, the adult type of tuberculosis. At this writing we are more than pleased to note that our admonitions are fully



carried out to the letter by the parents or guardians.

We have inaugurated in our diagnostic clinical work a "follow up" system. The nurses visit the homes of these little patients every few months throughout the year to see that the method of care and treatment is rigidly carried out; insist that all the children be returned to the City clinic at regular intervals for another examination.

Of the many children who have come to our diagnostic clinic and who are now under our observation, now more than three years, we have not had a single child who has passed out of the childhood type of the disease and has entered into the adult type—the pulmonary form. Our chief aim is to prepare these children for adolescence, to carry them safely beyond that period, when with increased resistance tuberculosis as a disease entity is permanently inhibited.

2370 S. W. 23rd Terrace.

#### NEW OBSERVATIONS ON DENTAL CARIES

A symposium on dental caries was held in Pittsburgh, June 23, 1932, under the auspices of the International Association for Dental Research. The main papers were presented by Dr. H. E. Friesell, Dean, University of Pittsburgh School of Dentistry, and Dr. J. J. Enright, a research specialist of Mellon Institute. These contributions gave the first complete account of the results of a comprehensive scientific investigation of dental caries that has been in progress at Mellon Institute and the University of Pittsburgh during the past nine years. Prominent scientists who discussed these findings at the meeting were Dr. William J. Gies, Columbia University, Dr. Edward H. Hatton, Northwestern University, Dr. R. W. Bunting, University of Michigan, Major F. E. Rodriguez, Dental Corps, U. S. Army, Dr. Philip Jay, University of Michigan, and Dr. Theodor Rosebury, Columbia University.

Dr. Friesell gave a description of the present status of the scientific knowledge of dental caries and followed with a presentation of the clinical aspects of the disease, pointing out that the peculiar localization of the carious processes could be correlated as due to active causative agents in the immediate environment of the teeth. He reported that a knowledge of the fundamental facts of embryologic and histological nature indicated that nutritional factors are important in a secondary or predisposing manner.

Dr. Enright reported studies of the effects of acids on enamel with simple lactic acid and citric acid buffer solutions which etched enamel in all ranges studied even in the neutral and slightly alkaline range. That tooth enamel under natural conditions in the mouth was not dissolved over the entire crowns of the teeth was shown

to be due in large measure to the fact that saliva in all of the 225 cases studied was saturated with tricalcium phosphate. In an additional study of the effects of acids on enamel, in which certain pertinent characteristics simulated conditions of the local decay areas in the mouth, it was demonstrated that the degree of acidity necessary to decalcify enamel could be produced only by lactobacilli. The bacteriological study of carious and non-carious patients also showed that the activity of the disease could be correlated with the presence of lactobacilli. This was particularly true when the follow-up examinations were used to substantiate the bacteriological and clinical diagnoses. The mass of evidence presented by earlier workers, confirmed and amplified by these experimental results indicating the importance of lactobacilli, raised the question as to what type they were. An extensive taxonomic study of lactobacilli types from oral and intestinal sources gave a basis for classification of these bacterial forms.

Dr. Bunting discussed the progress that had been made in advancing the view that dental caries is an infective process in which specific types of bacteria, acidogenic and aciduric in nature, are resident on surfaces of teeth and by their acid production cause tooth destruction.

Major Rodriguez strongly commended the decalcification experiments and the proposed classification of lactobacilli. He called attention to the results of his bacteriological survey, which were even more encouraging than those reported by Drs. Friesell and Enright, respecting the importance of lactobacilli. He also pointed out the desirability of a quantitative rather than a qualitative technique in making bacteriological surveys of the dental zone.

Dr. Jay in his discussion suggested research for methods of controlling overgrowths of lactobacilli in the mouth. He reported that manipulations of the diet had thus far given the Michigan group more encouraging results than had drug therapy in effectively diminishing such overgrowths.

#### WAYSIDE VENDORS ENDANGER HEALTH

With a multiplicity of ice cream, soft drink and sandwich vendors crowding street corners and lining the highways in unprecedented numbers a new double danger to motorists and other patrons has developed. Any one of these vendors who happen to be a typhoid fever carrier may spread the disease far and wide among his customers. On the other hand, the careless parking car, even though briefly temporary, near these vendors adds an important hazard to traffic. All unhygienic food and drink dispensers whether in the open or behind the soda fountain counter are a positive and active menace to health especially at this time of year. The chief danger is not in the drink or food but in the personal habits of the one who sells it for immediate consumption.

Danger of this new hazard is emphasized by two important developments. First, typhoid fever is twice as prevalent as it was at this time last year in Illinois and the epidemiological evidence indicates that most cases originate from carriers, healthy people who are spreading the germs. Second, 8 typhoid fever carriers,

all of whom were milk or food handlers, were detected recently in Springfield in a search for the source of some 20-odd cases of typhoid which developed in Sangamon County. When a careless typhoid carrier handles sandwiches, ice cream cones, cracked-ice used for drinking glasses and the like just before serving, the value of all previous sanitary precautions is destroyed.

Using a drinking straw for sanitary reasons is useless if the clerk who passes it to you with soiled fingers is a typhoid carrier. No matter how sterile the ice when it leaves the factory, there is danger of infection if a typhoid carrier behind the counter breaks the ice in his hands before dropping it into the glass.

In short, it is the personal habits of the people who dispense foods and drinks that count. Typhoid fever is already unusually prevalent this year. Cases are coming from carriers. A carrier who dispenses food or drink is dangerous to health. The vendors are too numerous to permit an examination of each by the health authorities. People must exercise reasonable precaution on their own initiative if they escape danger.—*Illinois Health Messenger*, July 15, 1932.

#### A REAL BOY

A little boy went to school for the first time. When he returned home his father inquired how he liked it.

"It's all right, but they ask too many questions," said the lad. "First they asked me where you were born and I told them. Then they asked me where mother was born and I told them. But when they asked me where I was born I had to tell a lie."

"Why?" asked the father.

"I didn't want to say I was born in the Woman's hospital and have them think I was a sissy, so I told them it was in the Yankee stadium."—*New York Sun*.

#### PAINFUL ANEURYSMS OF AORTIC ARCH: RELIEF BY PARAVERTEBRAL INJECTIONS OF PROCAINE AND ALCOHOL

James C. White, Boston (*Journal A. M. A.*, July 2, 1932), reports three cases in which successful relief of pain was obtained in advanced aneurysms of the aortic arch. He states that the intense suffering that may occur in this condition, as well as the cardiac pain of angina pectoris, can be relieved by paravertebral injections of procaine or alcohol. Procaine injection is of diagnostic value in determining which communicant rami transmit the painful impulses to the spinal cord. It may give relief over prolonged periods. Alcohol, when accurately injected, causes permanent destruction of the sympathetic rami. The author emphasizes the fact that the paravertebral injection of alcohol is a poor substitute for sympathetic ganglionectomy in any patient who is a reasonably good operative risk, on account of the technical difficulty of injecting the alcohol with sufficient accuracy to be certain of destroying the ganglions or their communicant rami. However, in cases in which there are rapidly enlarging aneurysms, the dangers of cardiac decompensation, respiratory obstruction, or rupture of the aneurysm make a radical operation on the stellate and second dorsal ganglions

quite out of the question. In these, however, paravertebral injection can be done with reasonable safety and a good chance of lasting relief of the chief complaint—pain. While actual prolongation of life is not to be expected from the relief of pain, it, may be brought about indirectly by permitting the exhausted sufferer to rest and sleep in relative comfort.

## Society Proceedings

### PIKE COUNTY

The Pike County Medical Society met in Nebo, Thursday, July 28, 1932.

A sumptuous dinner was served at the residence of Dr. J. H. Rutledge by Mrs. Rutledge and other Nebo ladies.

The meeting convened in the basement of the High School at 1:30, President J. H. Rutledge in the chair.

Considering the torridity of the day it was a fine place for the meeting.

The first number on the program, "Post-Graduate Medical Study in Europe," was given by Dr. Harold Swanberg of Quincy.

In a very pleasing manner, Dr. Swanberg told of his work over there during his seven months stay last year.

He told us much of Vienna, as by far the greatest center for post-graduate work in Europe, and of all its many advantages, but stated that Berlin, if the present plans of her medical men are carried out, would also probably become a center for medical study, comparable with Vienna.

He spoke of the wonderful progress of the Swedish men in medicine and especially in his own specialty of radiology.

Dr. Swanberg also gave us a great deal about all the many countries he visited, their institutions, their people, and the characteristics, manners and customs of the peoples, and of their economic condition at the present time. This paper was very interesting, instructive and entertaining.

Dr. Walter M. Whitaker of Quincy gave the second number, on "Practical Electrocardiography." This paper also was intensely interesting, as the author proceeded to tell of and exhibit to us many different tracings, some of normal hearts and many of various forms of cardiac pathology, concluding with a demonstration of his instrument upon several volunteer members of the society.

We had hoped to have some heart cases for him, but the heat and humidity of the day made it impossible to bring any of them in.

This paper, and the demonstrations, as well, were received with great interest by all present.

A resolution was adopted thanking the Quincy brothers for the program, and Drs. J. H. Rutledge, J. H. Goodman and R. P. Wells, our hosts, and the ladies for their hospitality.

Also the invitation of Dr. P. H. Dechow of Kinderhook to meet with him in October was accepted, after which the meeting adjourned in due form.

F. N. WELLS, Secretary.



## Marriages

ANTHONY BAGNUOLA, Chicago, to Miss Janice Emily Livingstone of Baltimore, April 11.

WALTER EARL BARTON, Elmhurst, Ill., to Miss Elsa Viola Benson of Orange, Mass., July 2.

MARCO S. PETRONE, Chicago, to Miss Jennie Mikulich of Aurora, Minn., July 6.

CLARENCE W. RAINEY to Dr. Clarissa E. Devney, both of Chicago, April 30.

JOHN F. WIXTED, Sterling, Ill., to Dr. Julia M. Lundstrom of Chicago, July 16.

## Personals

Dr. Samuel M. Feinberg, Chicago, addressed the Carroll County Medical Society at Savanna, June 17, on "Respiratory Allergy."

Dr. Chauncey C. Maher has been appointed assistant professor of medicine at Northwestern University Medical School, effective June 1.

Dr. Leon Unger spoke over the radio, July 26, on "Hay Fever."

A symposium on cancer was conducted before the La Salle County Medical Society in Ottawa, June 21, by Drs. Peter A. Nelson, Jr., Joseph E. F. Laibe and Herbert E. Schmitz, all of Chicago.

Dr. Cyrille Vermeren, Belgian consul since 1915, has been awarded the Cross of Officer of the Order of Leopold and promoted to the rank of consul-general, the newspapers recently announced. Dr. Vermeren was a practicing physician in Chicago for years.

Dr. John R. Harger was presented with a gift recently by fifty members of the staff of the Garfield Park Community Hospital. The presentation was part of a celebration in honor of Dr. Harger on his retirement as president of the Chicago Medical Society. Dr. Harger was one of the founders of the hospital.

An open-air dinner was given by the Randolph County Medical Society, June 17, in honor of Drs. James W. Weir, Sparta, and William A. James, Chester, to celebrate their completion of fifty years in the practice of medicine. Speakers included Dr. William K. McIntyre, St. Louis, on "Pruritus Ani."

At the annual meeting of the Chicago Urological Society held May 25, the following officers were elected: President, Gustav Kolischer; vice-president, Ben E. Fillis; secretary-treasurer, L. L. Veseen.

## News Notes

—The state department of registration and education revoked the license of Dr. James L. Hawkins, Chicago, June 22, on his conviction of fraudulent misrepresentation in connection with the "American Society for the Conservation of Vision." The board revoked the license of Dr. Charles C. Keester, Wichita, Kan., July 7, on his conviction of first degree manslaughter.

—Physician members of the Chicago Woman's Club have been organized into the Navy Pier Committee to conduct a health program each Tuesday afternoon at 2:30, during July and August, on the Navy Pier, for the education of people who make the pier a recreation spot. The health lecture, which is given by a woman physician, is followed by a question box and preceded by a short program of music or other appropriate entertainment. Dr. Sara C. Buckley lectured on "Nature's Milestones," July 5; Dr. Alice I. Conklin, July 12, on "High Blood Pressure"; Dr. Julia C. Strawn, July 19, on "Safe Surgery"; Dr. Bertha Van Hoosen, July 26, on "Self-control." Future programs will be: August 2, "The Expectant Mother" by Dr. Effa V. Davis; August 9, "Mental Habits in Child Development," Dr. Josephine Young; August 16, "Feet," Dr. Anna E. Blount; August 23, "Adolescence," Dr. Lena K. Sadler, and August 30, "Treatment of the Common Cold," Dr. Alice K. Hall.

—Simple ceremonies marked the laying of the corner-stone of the new home of the Provident Hospital, June 14, which is the building formerly occupied by Chicago Lying-In Hospital, now being remodeled. In a cooperative program between the hospital and the University of Chicago, it is planned to develop this institution into a medical education center for Negroes. This program includes the care of the sick, clinical instruction for medical students, an increase in the number of internships for Negro physicians, graduate medical training, opportunities for Negro students for teaching and research. In 1930 a fund of \$3,000,000 was subscribed for the development of this center. Provident Hospital, now at 16 West Thirty-Sixth Street, was founded in 1890 and has since been an important center for medical work among Negroes of the community. Rear Admiral Norman J.

Blackwood, medical corps, U. S. Navy, retired, has been appointed medical director.

—Beginning July 1, the Maxwell Street Dispensary of the Chicago Lying-In Hospital will be operated as a neighborhood maternity clinic, for a period of ten years. The dispensary will be known as the Chicago Maternity Center, and the lying-in hospital will continue to work in affiliation with it. The hospital had its beginning in the dispensary thirty-seven years ago, when Dr. Joseph B. De Lee, who is in charge of the hospital, founded it in four rooms of a tenement at Maxwell Street and Newberry Avenue. Since then the dispensary work has been carried on continuously. Hospital care is provided for homeless expectant mothers, but most of the work of the staff is done in the homes of the poor. Free nursing and medical service are furnished. The change in management was necessary because of lack of funds. As the closing of the institution would deprive women of the district of the proper care, it is hoped that sufficient funds will be procured to assure its continued operation. Dr. De Lee will continue as chief of the consulting staff.

—Dr. Meyer Solomon, associate in neurology, Northwestern University Medical School, was elected president of the Chicago Society for Personality Study, organized May 25. Other officers elected are Ernest W. Burgess, Ph.D., professor of sociology, University of Chicago, vice-president, and Dr. Paul L. Schroeder, professor and head of the department of criminology, University of Illinois College of Medicine, secretary. Charter members of the society include Harvey Carr, Ph.D., professor of psychology, University of Chicago; Dr. John Favill, associate clinical professor of neurology, Rush Medical College, and Robert H. Gault, Ph.D., professor of psychology, Northwestern University. It is the intention of the society to study human behavior and personality from all angles. Monthly meetings will bring together psychiatrists, psychologists, sociologists, anthropologists, educators, physiologists, biochemists, political scientists, criminologists and others concerned with advancement of the knowledge of personality. Problems to be studied will comprehend family situations, incompatibility, delinquency, the alcohol and drug habits, cerebral fatigue, constitutional make-up, and others. Membership will be limited to 100.

## Deaths

VERNON DEE BRIGHAM, Robinson, Ill.; University of Cincinnati College of Medicine, 1920; aged 39; died, May 17, at Elk City, Okla., of poison, self-administered.

EDWARD J. BROUGHAM, Chicago; Chicago Medical College, 1887; a Fellow, A. M. A.; fellow of the American College of Surgeons; aged 66; on the staff of the Henrotin Hospital, where he died, June 15, of carcinoma of the tongue.

OTHO MARION FORD, Rockford, Ill.; Chicago College of Medicine and Surgery, 1908; member of the Illinois State Medical Society; aged 51; died, June 14, of an overdose of morphine.

GEORGE S. GFROERER, Oak Park, Ill.; College of Physicians and Surgeons, Chicago, 1885; a Fellow, A. M. A.; aged 73; died, July 5, in the Oak Park Hospital, of carcinoma of the stomach and chronic myocarditis.

FREDERICK O. JACKSON, Bloomington, Ill.; Chicago Medical College, 1887; aged 73; died suddenly, May 30, at his summer home at Bass Lake, Ind., of cerebral hemorrhage.

ALOYSIUS J. LENNON, Joliet, Ill.; College of Physicians and Surgeons, Chicago, 1901; a Fellow, A. M. A.; fellow of the American College of Surgeons; chief of the obstetric department, St. Joseph's Hospital, and surgeon to the Silver Cross Hospital; aged 54; died, July 7, of undulant fever.

ISAAC S. LOUIS, Chicago; Northwestern University Medical School, Chicago, 1900; a Fellow, A. M. A.; aged 55; died, June 28, of cerebral hemorrhage.

OREN JUDSON WATERS, Chicago; Jefferson Medical College, Philadelphia, 1891; member of the Illinois State Medical Society; fellow of the American College of Surgeons; assistant professor of (extramural) surgery, Northwestern University Medical School; on the staff of the Passavant Memorial Hospital; aged 74; died, June 25, in Milwaukee.

JONATHAN LEAMING WIGGINS, San Diego, Calif.; St. Louis Medical College, 1877; member and past president of the Illinois State Medical Society and St. Clair County Medical Society; fellow of the American College of Surgeons; member of the Illinois Department of Registration and Education, 1919-1920; former member of the board of education of East St. Louis, Ill.; at one time on the staffs of the Deaconess Hospital and St. Mary's Hospital, East St. Louis; aged 77; died, May 28, of heart disease.

HARLOW V. WILSON, Champaign, Ill.; Medical Department of Washington University, St. Louis, 1903; member of the Illinois State Medical Society; aged 56; was killed, June 27, when his automobile, under which he was working, fell on his chest.

ULYSSES GRANT WINDELL, Chicago; College of Physicians and Surgeons, Chicago, 1894; member of the Illinois State Medical Society; served during the World War; at one time medical inspector for the city board of health; formerly on the staff of the West Suburban Hospital, Oak Park, Ill.; aged 65; died, June 9, in the Edward Hines, Jr., Hospital, Hines, Ill., of bronchopneumonia.



## Book Reviews

**MEDICAL CLINICS OF NORTH AMERICA.** (Issued serially, one number every other month.) Volume 16, Number 1. (Philadelphia Number—July, 1932.) Octavo of 290 pages with 75 illustrations. Per Clinic year, July, 1932, to May, 1933. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1932.

The contributors to this number are Doctors Banks, Bockus, Campbell, Carey, Cooper, Devalin, Drant, Duncan, Farley, Fitz-Hugh, Jr., Gordon, George C. Griffith, Reynold S. Griffith, Jones Kalteyer, Kern, Krumbhaar, Ludy, Miller, Wm. T. Read, Jr., Rehfuess, Richardson, Rose, Stokes, Jr., Strecker, Stroud, Talley, Tocantins Wilson, Wohl, Wolferth, Wood.

**MATERIA MEDICA, PHARMACOLOGY AND THERAPEUTICS:**

By Walter A. Bastedo, Ph. G., M. D., Sc. D., F. A. C. P., Assistant Clinical Professor of Medicine, Columbia University, Consulting Physician, St. Luke's Hospital, New York, St. Vincent's Hospital, Staten Island, and the Staten Island Hospital; President, United States Pharmacologic Convention, 1930-40. Third Edition, Reset. 739 pages with illustrations. Philadelphia and London: W. B. Saunders Company, 1932. Cloth, \$6.50 net.

This work has gone through three editions in quite rapid successions, showing a remarkable demand for the work. The book is an adaptation, for the most part, of lectures delivered at Columbia University. Throughout the work the author has laid most stress upon those things that bear on practice, even to the exclusion of some matters of great interest to pharmacology. In this edition as in previous ones, the author has continued to emphasize such established facts, both laboratory and clinical, as have seemed of practical importance to the practicing physician.

**LEAGUE OF NATIONS QUARTERLY BULLETIN OF THE HEALTH ORGANIZATION THE WORLD PEACE FOUNDATION.** 40 Mt. Vernon St., Boston, Mass. Volume 1, Number 1, 1932. Geneva. Price per year, \$2.00.

The Health Organization of the League of Nations has been in existence for ten years. Heretofore, those who wish to follow the health work of the League of Nations has been obliged to consult various documents and records of international conferences, the minutes of committee, report by experts, annual reports, etc. In the quarterly bulletin of which this is the first number all the data bearing on health matters is connected in book form and published quarterly.

**ELECTROSURGERY:** By Howard A. Kelly, M. D., LL.D., F. A. C. S., Baltimore, Maryland, and Grant E. Ward, M. D., F. A. C. S., Baltimore, Maryland. 305 pages with 382 illustrations by William P. Didusch and others. Philadelphia and London: W. B. Saunders Company, 1932. Cloth, \$7.00 net.

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## Editorials

### IN THE FAMILY PHYSICIAN RESTS THE HOPE OF THE FUTURE STABILITY OF MEDICAL SERVICE

Universal stability of medical practice rests with the family physician. Therein lies the equalizer against socialistic chaos, an unexaggeratedly approaching menace.

That here is the sheet anchor of this service to humanity,—older than the law, and as vital almost as the air we breathe—is daily becoming more and more the admitted conviction.

Just as no one citizen can remain isolated from the other members of the community, so human ailments are not of themselves a thing apart but each is an integral unit of the whole scheme of mortal existence. Environment, heredity, occupation, amusements, the mental, the moral and the physical are so interwoven with disabling ailments that the whole pattern is intricate beyond explanation.

For that reason the best specialist is apt to be the man who doesn't specialize his generalities but generalizes his specialties. Investigated carefully, through no fault of its own the field of specialization and the field of socialization are not so far apart. Their bond is the generous endowment of the misguided lay philanthropist or reformer and the futile misguided lay inspired legislation. It is the tie between the prodigal son and his known but unaccused debaucher, a bond welded in the soft ways of ease and dalliance.

Perhaps there is no more trite and yet no more accurate way to epitomize the service of the family physician from pioneer days to the piping times of prophylaxis, whose only noxiousness has been the tares of lay-usurpers and their works. than to remark that the real, old fashioned dyed-in-the-wool, traditional family physician or general practitioner is and was a *community mother*." "Mother" because a genuine general practitioner stands for that sort of undying personal sacrifice that the world through the ages of

begetting and begat has allied with the female of the species, save for a few benighted examples of unfortunate maternal instincts in the lower orders of creation.

The family physician of the Spartan type whose part in the upbuilding of the world ranks among the great sacrifices of civilization stood and stands for law and order, and as a community protectorate.

He was, is and will be, among other things, a bulwark against such menaces against civilization as are embodied in the much propagandized and current trends towards

1. Lay dictation and control of medical practice.

2. Endowed foundations entering practice of medicine.

3. Corporations engaged in medical practice.

4. Inimical medical legislation.

5. Political control and interference with medical practice.

6. Unrestricted activities of quacks with general public health.

7. Lay and semi-lay pay clinics for other than the poor.

8. Superseding of physician by overtrained nurse.

9. Health departments practicing general instead of preventive medicine.

10. Attempts by Congress and State legislatures to dictate therapeutic procedures. Diagnosis, dosage and demand should be regulated by scientific judgment in all its flexibility rather than by inflexible, legislative statute.

11. Attempts by lay organizations and individuals, and by capitalistic foundations to effect arbitrary control and supervision of disease, and of the sick and ailing to the elimination of the physician as an individual, or as a unit in a purely scientific society, such as a city or county or state medical society or its divisional.

12. Attempts at fiat legislation that interfere in any way with the proper practice of medicine.

13. Attempts by politicians, misguided, ignorant or malicious, as the tools of cults, quacks and charlatans, to write upon the statute books of any state, county or city, legislation that will permit any imposter to enter the practice of medicine or in any way to assume care of the sick or ailing.

14. Attempts by corporations to act as intermediaries between physician and patient and

thus eliminate the benefits to the patient of a direct contact with the medical advisor.

15. Attempts through various agencies to take from the hands of the family physician, aided if necessary by a local specialist, the requisite periodic health examination.

16. Attempts to effect an indirect medical service anywhere and in any way through a third party.

17. Attempts to install an over-centralization of medical authority with all the dangers and destructive influences attendant upon such non-American bureaucracy.

18. Attempts to create a federal despotism or a modified soviet with socialization of medicine the touchstone for this calamity.

19. Spreading the doctrine that the greatest need, legislatively speaking, in the United States today is decentralization of government at Washington. "America is the most law ridden country in the world. In fact, America is forced by law to do and prohibited by law from doing more things than had been prohibited or required in autocratic Europe before the war."

20. And that bureaucracy is always a curse, and centralization a lethal menace under any conditions. Where the practice of medicine is concerned, it is fatal.

The family doctor was among the first, too, to recognize the necessity for every doctor to be firm in

1. Defense of the medical profession from emotional villification from misguided individuals in the profession and from ignorant individuals of the general public.

2. Protection of the profession from misleading opinions engendered in the public mind through unfair, untruthful and bombastic newspaper publicity attained on the part of certain members of the profession from time to time.

3. Insistence upon the rank and ranks of the family physician, that fundamental factor in the practice of medicine that has unfortunately suffered temporary displacement through the enthusiastic if not altogether balanced rush for specialization that has, through no precise fault of the doctors themselves, permitted a specious foothold for cults in the chasm between the service of the specialists and the average service afforded by the modern general practitioners.

4. And to spread realization on the part of both mature doctor, recent graduate and under-



graduate student that the general public is demanding increasingly a punctilious service for those comparatively trivial ailments that comprise the bulk of human ailments and that proffer fertile mediums for the increase of charlatanism.

5. To know that the outlook for the future is promising because of an awakening of the professional conscience to the wrongs that have been perpetuated against individual members. Loyal sons of mother science augur that protective action that will follow will bring the remedy. "Diagnosis is half the cure."

Very early in the game the family physician sensed that his forebears had engaged essentially in emergency or in epidemic practice. Yet their modern successor was quick to do what he could to forestall epidemics and to prevent emergencies. Most of all he was and is *interested in curing the patient*, in keeping him up and doing, and well and able and an economic factor in community life. What he cured his patient of mattered less to him than that the patient was cured and working and bearing responsibilities and maintaining self-respect. Personal and individualistic service was one of the biggest things he gave but one of the least charged for in his "statements of account." He understood his patients and his sympathy was based upon this understanding.

His practice was as much a part of him as were his saddlebags and later his gig, or later still, his motor. One of the troubles with the modern physician is that *he hates to be so personal*. He doesn't want to share in the lives of his patients, he wants to keep them at arm's length. It is a nice bit of self-preservation, too. But he is really more interested in the disease than in the man who has it. Busily he seeks the cause of the disease and its prevention. Medical science has developed rapidly and extensively. The rise of laboratories, diagnostic tests, x-rays, hospitals and specialties tends to obscure the modern physician in his perspective and cause him to overlook the individuality of the patients in the diagnostic maze of a puzzling disease. Emphasis is placed so keenly on diagnosis and prevention that the individual and patient is forgotten. The patient who senses this impersonal interest of his doctor, silently resents it, refuses his complete confidence, becomes critical and even skeptical of his medical advisers.

The modern physician is apt to carry the study of the nature of the disease often much further than is needed for the patient's welfare. He does not always take the patient fully into his confidence.

Modern medicine is not standing on its own feet, as the modern physician cannot practice medicine without laboratories, x-rays, hospitals and nurses, and he is less resourceful and more dependent on these aids than his forebears and is more expensive because the patient has to pay for all these aids. The doctor is lost in the study of the disease and the patient becomes worried over the expense and wonders why the price is so high and the result so small. Recent study of medical practice indicates that nine-tenths of patients have ailments that can be readily diagnosed and treated, and for which elaborate studies and consultation with specialists are entirely unnecessary.

Here is the marked difference between the general practitioner and the "coming man." The one would seem out to *kill the disease* and the other *to cure the patient*. The end of course may be the same, but—is it?

Trend towards self-medication, towards distrust of the ethical profession, the landslide towards cults, charlatans and nature cures would seem to indicate the rift within the lute. And to show that the patient to himself at least is more important than the disease. Moreover it would seem to hint at the fact that the medical profession dropped out its ballast of the general practitioner far too soon and far too thoroughly.

The only way to rectify a mistake is to restore original conditions. The earlier that emphasis in the profession is made to stress the importance of good general practitioners the sooner will the profession be re-stabilized—one might almost write truthfully—"Re-established."

For that is what we are coming to.

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THE CLAIMS OF THE CHILDREN'S  
BUREAU REMIND US OF THE FLY  
ON THE CHARIOT WHEEL—"MY,  
MY, WHAT A DUST WE ARE  
RAISING!"

Quite in line with other foolishly preposterous statements of the lay usurpers of the functions of the medical profession is that made in a twentieth anniversary celebration, and over the radio, by a member or representative of the Fed-

eral Children's bureau of the Department of Labor.

The ridiculous remark was uttered by this representative that if it were not for this children's bureau, young, inexperienced mothers would "not know which way to turn" to get aid for sick children and that they had not known twenty years ago what to do before this bureau was in existence.

According to the speaker, none other than Katharine Lenroot, (daughter of Ex-Senator Lenroot of Wisconsin) assistant to the chief of the bureau,—realization was brought to the bureau as to what would be the sad condition of the United States where babies are concerned if this group of lay meddlers were abolished by a letter from a mother who asked "if a diet of gunpowder would cure the styes on her baby's eyes."

Apart from the fact that the baby might either have been blinded or exploded or recovered by due process of nature before the Children's Bureau had its answer in, Miss Lenroot's remark makes us wonder a lot.

She may not know it, but there have been practicing physicians in this country ever since the Mayflower landed,—ay even a priori—for Christopher Columbus fetched a man of medicine along with the Santa Maria, the Pinta and the Nina.

Even in those benighted days it was thought quite meet, fit and proper to go to a doctor *instead of to any sort of a fol-de-rol egotistic bureau of political appointees keeping the country safe for the hand that fed.* Even in those days of insanitation bureaucratic red tape was dispensed with even as a necessary first umbilical aid. This claim of the Children's Bureau reminds us of the fly on the chariot wheel—"My, my, *what* a dust we are raising!"

It begins to look at last as if others besides members of the medical profession were a little bit tired of hearing the fly shriek its capabilities for Maternity and Infancy Hygiene, 72d Congress, 1st Session, Senate Report 428, Part 2, March 14, 1932, it is stated, "In a recent hearing on the work of the Children's Bureau, seven members of the Senate Committee on Commerce, including Senators Moses, Broussard, Stephens, Hawes, Bailey, Coolidge and Bingham, united in a minority report to the effect that they were

not wholly convinced of the value of the child health activities of the bureau, and Senator Vandenberg added his own minority report opposing the extension or reviving of the so-called Shepard-Towner Maternity and Infancy Hygiene Act. These gentlemen put their signatures to the following statement: 'It is significant that medical societies, including the American Medical Association, . . . oppose this legislation. . . . This significance is all the more marked because it is known that the doctors who belong to these societies give more than half of their time to the poor, without price and without considering their time; . . . they go to the hospitals in their large cities and in their communities day after day, week after week and year after year, operating to save the lives of poor people without charging one single cent for their services.'

After all it is both interesting and true that family doctors did exist as reputed. We still have some of them. They still exist notwithstanding the extraordinary efforts of noncomprehending philanthropists, sociologists, economists, and governmental bureaucrats to abolish this master service. The hubbub, the tumult, and the shouting about medical costs and the decadence of medical service can't kill the family doctor and his faithful adherence to the tenets of the profession. Even if there were no federal bureaus, mothers wishing information about the health of their children would still have some place to turn, namely, the ethical medical profession.

As the Journal of the A. M. A. says with feeling, "The family doctor, according to tradition, used to usher babies into the world, not infrequently having been in attendance at the births of their proud young parents some eighteen to twenty years before. Then he used to take care of them in all their ills, real or imaginary, major or minor. He often dashed out at night to reassure frightened young mothers: he was always willing to answer all kinds of anxious questions; he reminded parents about vaccinations and then proceeded to vaccinate the children. He was quite a valuable institution in the community, if tradition is correct. Apparently tradition is all wrong, however, because Miss Lenroot says that the parent of twenty years ago would have had to feed gunpowder to her baby with a fine



experimental motive in order to ascertain whether or not it would cure the baby's styes. She would have had no other place to turn!"

### WRESTING MEDICAL PRACTICE FROM THE HANDS OF PHYSICIANS AND PUTTING IT INTO THE HANDS OF POLITICIANS

"Et, tu, Brute!"

With a slightly invert sense this is the cry that the medical profession should hurl at the very next "reform" practitioner(?) of medicine, who instead of rendering unto medicine the things that are medicines wants to grab off the honorariums—but not the responsibility for the public health—by wresting medical practice from the hands of physicians and putting it into the hands of the politicians.

"*Medical practice for meddling politicians*" seems to be the motto under which modern life is ready to carry on.

Of course the doctors can make the retort courteous by crying "*Politics for physicians.*"

For those who decry such extreme measures the middle road is open to bring to the attention of their communities the knowledge that the very persons who are at the forefront with the idea of socializing medicine and making it the property of lay dictatorship, the apt comments of Henry Swift Ives to whom we have hitherto made reference in these columns and from whom in part we quote

"A Chicago suburban village referred to as a millionaire colony maintains a municipal electric light plant when not one voter in a hundred in this village would for a moment favor the socialization of his particular business.

"In a prosperous middle western city one of the leading advocates of a municipality owned traction line is a prosperous insurance agent, but he bitterly opposes socialists in their effort to force the state into the insurance business.

"A lumberman in the far west is fearful that his state will go into the business of manufacturing fruit boxes for farmers at cost, yet he advocates compulsory state workmen's compensation insurance to the exclusion of private enterprise and competition.

"A meat packer advocates government ownership of the railroads but fights it for his own

business. Numberless instances of similar inconsistencies could be given.

"It is remarkable that in industries most threatened by government ownership, many of the leaders do not seem to care what becomes of the other fellow in the same boat, provided they themselves keep a few feet ahead of the socialist sheriff with his writ of ejectment.

"The real issue in America today is not whether certain industries shall be socialized, but whether the institution of private property shall be maintained.

"It is too much to expect people to take seriously protestations of one industry against government ownership when we find the leaders of that industry advocating government ownership of somebody else's business."

There is no more reason why medicine should be socialized than there is for the socialization of every other industry. People are just as much entitled to free groceries, free clothes, free shoes, and every necessity of life as there is for free medical attendance.

Socialism wiping out the rights of the individual will destroy the initiative and self-reliance which is the bulwark of our country. And medicine is not the field where socialism and ignorance should do their exhibition jousting.

### SOUNDS LIKE AN EDITORIAL FROM THE ILLINOIS MEDICAL JOURNAL

The appended editorial was clipped from the *Chicago Tribune* and sent to us by Dr. Edward H. Ochsner. We think it is a splendid bit of both thought and writing and are human enough to want to show our bouquet to everybody as in the letter Dr. Ochsner wrote:

Aug. 21, 1932.

Dear Dr. Whalen:

The enclosed clipping sounds as though it might have been written by Dr. Chas. J. Whalen as an editorial any time within the past fifteen years.

Sincerely,

E. H. O.

THE EMBATTLED BUREAUCRATS

A Madison, Wis., story says that if the federal bureaucratic services are to be sentenced to death to save the taxpayers 660,000 federal employees will know the reason why. Mr. Johnson, the president of the Madison Federal Employees association, is authority for it. If any one tries to

chase the federal barberry diggers, bug specialists, bullfrog biographers, sheet testers, maternity nurses, pedagogues, patternmakers, etc., off the premises while there are any premises left the amalgamated order of the public pay roll will step in and get tough.

The unconstitutional services of the federal government which have put a drag on every citizen in order to slow him down and go through his pockets have become, as might be expected, vested rights. Although illegitimate in their birth, they have been made the heirs of Uncle Sam and now they are entitled to support.

It will make a nice fight, but it will not last long. The taxpayer cannot survive with the pay roller, but the pay roller will find that he cannot exist without the taxpayer. When the latter has turned up his toes the federal employes may see how far they can get taking in each other's washing.

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#### CUBAN PHYSICIANS REVOLT, POSTPONE STRIKE SEVENTY-TWO HOURS

A revolt of the helots has taken place in Cuba, and the medical world is wondering "what will the harvest be?"

In the June 1932 issue of the ILLINOIS MEDICAL JOURNAL readers were told of the actual peonage in which the practice of medicine was held in this West Indian Island—a so-called republic. Under guise of "mutual aid societies" about two millions of the three millions of the population receive for the sum of \$2 per month not only medical care but club, school and gymnasium privileges.

Formed originally to benefit the laborers, when the plantation owners and wealthy patrons of the societies began to arrogate for themselves this same sort of "Bargain care," why the 3,000 physicians on the island simply and solidly struck. Last reports are that arbitration is in process following a request by the president of Cuba that the doctors should postpone action on their strike for seventy-two hours. Though confronted by knowledge that thanks to the workings of the some twenty or more health societies, one of which has at least 60,000 members and through which during the fifty years that these health societies have been in existence, the private practice of medicine has fallen gradually

into desuetude and the medical profession itself begun to retrograde through this specious exploitation of the medical profession,—the Cuban physicians agreed to postponement and arbitration.

The crux of the dispute wages around the refusal of the societies to drop from their membership lists all persons financially able to pay regular fees for medical attendance.

Night and day for a mere pittance labor the physicians who are in the employ of the mutual aid societies. Constantly driven by excessive demands on their services they are unable to give to any patient the individual medical attention necessary to satisfactory and intelligent medical care.

This strike of 1932 is not the first time that there has been rebellion on the part of the Cuban medical profession. A federation was formed to oppose these powerful trusts and to free the medical profession but without much result, save continual contention. Previously to 1927 when Dr. J. M. Penichet, professor of ophthalmology of the University of Havana, called conditions to the attention of the House of Delegates of the American Medical Association, the profession had revolted twice. Since that time there has been constant conflict. The recent strike is the climax.

Now these health insurance societies of Cuba with their lay direction, lay dictation and lay endowments are "sisters under the skin" (and upon it, too.) of similar socialistic propaganda springing up like parsley on all sides in the United States. A new group of helots is under pressure here in our own country, right in the shadow of the Liberty Bell and the Declaration of Independence.

Lamentably enough Abraham Lincoln' Emancipation Proclamation and the subsequent Civil War freed the African slaves but failed to throw up a bulwark of protection against the enslavement by exploitation of various classes of American citizens, both educated and uneducated.

The United States is rid of the stain of enslaved blacks counted little better than live stock or field crops, but is glutted with other classes held as the merest chattels by their fellowmen. Ranks of child and sweat shop labor, the struggling "white collar" class, the driven groups of unskilled labor are being enlarged by the last



group in all the world that should wear such chains—the dispensers of the healing arts.

Europe as well as Cuba and others of the semi-tropical countries by so-called “state medicine” and “mutual aid societies” have laden the practice and profession of medicine with such chains and fetters that almost the height of slavery has been achieved.

Physicians never have had a more dire reason to follow the dictum “Physician, heal thyself” than in this matter of neglect of the sale of the profession into bondage.

For over twenty years the editor of the ILLINOIS MEDICAL JOURNAL has been preaching the urgency of an emancipation proclamation “for the profession by the profession, and of the profession,” from this industrial peonage inflicted upon it by socialistic agencies and socialistic propagandists.

The strike of the doctors of our neighbor and sister Republic is not a trivality but a vitality. Here is a “mene, mene, tekell upharsin” for the blindest of us to heed. Our revolt against slavery of the profession should begin immediately. *Organization and combat, from the consulting room to the ballot box should forever lift from the medical profession of the United States the danger of an enforced helotry.* “An ounce of prevention is worth a pound of cure.”

#### THE PRESENT TREND OF HOSPITALS IS TOWARDS STATE MEDICINE

Doctor C. S. Skaggs in the April Bulletin of the St. Clair County Medical Society surveys the factors that confront the medical profession, both scientifically and economically. Relative to the standardization of hospitals we quote:

“Where can we start? Where we are. State medicine is the thing we fear most and there is ample reason for us to fear it most, as it is the thing that the majority is helping most to happen both actively and inactively.

“A few days back a member of a hospital staff told me that he attended an executive committee meeting and he could see state medicine in everything they did.

“Hospitals are absolutely dependent upon the majority of the medical profession at the present time for their existence. If we are not careful, in a few years a minority of the profession

will be absolutely dependent upon the hospitals for their existence and the majority will have but little to depend upon. The majority can prevent this now, but it will be helpless tomorrow. What are we going to make use of, good or bad?

“I am convinced that the present progress of hospitals is toward State medicine. Not of the hospitals’ making, but due to the political control under the guise of standardization.

“It is only natural that the personnel of the hospitals should fall in line without once suspecting the end results. Aside from the large teaching hospitals they are all loyal to organized medicine, and friendly to the local physicians, ever ready to help in any way they can.

“Our local hospitals, however, are not represented in any way on the standardizing boards and are unaware of the far-reaching results of many things they do and consent to do. They are only trying to maintain a standard that will keep them a class ‘A’ standard. From whence these standards originate they know not.

“There will be a change, but is that change going to be for the best? It can be for the best if we, as physicians, make ourselves known in our medical societies.

“If we fail in this we may not be known in a few years to come.”

#### A NEW PICTURE OF HEALTH AND SOCIAL ASPECTS OF THE PRESENT METROPOLITAN FAMILY

Miss Day Monroe, professor of Home Economics, New York State College of Home Economics, in her book (just off the University of Chicago Press) says:

“Fully three-fourths of Chicago children come from homes where the income is inadequate to provide educational opportunities and is often below the ‘comfort level.’

“Only 70 per cent. of Chicago’s families live alone. Approximately 10 per cent. take in lodgers and 20 per cent. have relatives living with them.

“Slightly fewer than one-seventh or 14 per cent. of Chicago families are ‘broken,’ and of the total, more than four-fifths or 82 per cent. were broken by death, 12 per cent. by separation or desertion, and only 6 per cent. by divorce.”

Using the Chicago census data as the basis

for her book, which analyzes the metropolitan family, Miss Monroe presents a different picture from that long believed to be representative of the average family.

For instance, Miss Monroe points out that the average metropolitan family is not as large as budget experts plan for, nor are childless families as frequent as believed; the metropolitan family is not broken by divorce as often as popularly supposed; the husband is still the sole support of the family in the majority of unbroken homes, and, notwithstanding the much publicized rebellion of youth against the restrictions of home, approximately 85 per cent. of boys and girls between the ages of 16 and 21 are living with one or both parents, and approximately half of the unmarried men and women more than 21 are living with their parents.

#### "NORMAL" HARD TO FIND

Miss Monroe found, by taking a random sampling of one out of every 30 white families in Chicago, that: one woman out of every five in Chicago families is a breadwinner as well as home-maker; that of the married women living with their husbands, 17 per cent. earn money by their own efforts; of those with broken marital ties, 40 per cent., and among widows, divorcees and deserted wives, 72 per cent., are self-supporting.

"The family of four, now popularly supposed by many to represent the American norm," says Miss Monroe, "failed to live up to expectations, since only 20 per cent. of the families were of that size.

"No given-size family was found sufficiently often to be spoken of as the normal American type, but the average size of all Chicago families, broken and unbroken, was 3.7 members. In using this figure, it must be remembered that it represents the young and the old, the beginning and the ends of families, as well as those at their prime.

#### FEW "ONLY" CHILDREN

"The much discussed family of five, often used as a basis for budgeting and by labor organizations as a basis for their demands for wage increases, was found in only one home out of eight. Twenty-one per cent. of the families investigated were childless."

Fewer than 7 per cent. of the boys and girls

of Chicago are growing up as "only" children, according to Miss Monroe's book.

#### JOHN B. DEEVER PERPETUAL MEMORIAL FUND

The Aid Association of the Philadelphia County Medical Society is establishing a special perpetual fund in honor of Dr. John B. Deaver, only the income of which will be used to afford aid to needy physicians and their families.

All friends of Dr. Deaver are invited to participate. Any amount given will help in creating a fund which will be a fitting Perpetual Memorial.

All money received will be placed in the Dr. John B. Deaver Perpetual Memorial Fund. Checks should be drawn to the order of the Aid Association of the Philadelphia County Medical Society and sent to Dr. Francis Heed Adler, Secretary, 313 S. 17th St., Philadelphia, Pa.

#### MEDICAL ADVERTISING SOLICITOR WANTED

The ILLINOIS MEDICAL JOURNAL desires in Chicago and in each of the principal cities in the United States solicitors, preferably persons with medical advertising experience. No guaranteed salary. Compensation solely on commission basis.

Illinois Medical Journal,  
185 N. Wabash Avenue, Chicago, Illinois.

#### SOCIAL INSURANCE UNDERMINES NATIONAL CHARACTER\*

Parasitism is today the corroding canker of modern civilization, and anything which favors its growth and dissemination should be unequivocally condemned and most vigorously opposed.

The proponents of Compulsory Health Insurance or National Insurance, as it is called in England, reiterate again and again that these and the dole are totally different. In name and administration, yes; in effect, no. They both encourage people to want something for nothing or much for little, which in effect makes parasites out of them. Almost endless illustrations supporting the statement that Compulsory Health Insurance and the dole are alike in effect should be produced, but one

\*Eighth installment of Dr. Edward H. Ochsner's articles on Medical Economics.



will have to suffice. Liek, in his book, recounts the following experience he had while a Krankenkasse physician in Germany. A middle-aged man came to him for an examination with the view of securing sick benefit. Liek examined the patient carefully; could find nothing the matter with him; in fact, found him an unusually well-developed and robust individual. He told the man the fact and elicited the following story. The man told Dr. Liek that he was the only man in his village that did not get some kind of a government stipend, sick benefit or dole or pension and that everybody was ridiculing him because of this.

No one who is at all familiar with Bernard W. Shaw's writings will ever accuse him of being in favor of the present economic system in England. He has the following to say about the dole: "The Labor Party has just twisted conditions all around. They taxed people who live on unearned income, and create their own leisured class—people who live on the dole. The dole is not much, but if you have four or five in one family living on dole, you have a hostel of leisured people living very well. That must cease."

The whole Social Insurance scheme is based on the ethically indefensible theory that individuals are entitled to things that they have not earned and on the politically unsound doctrine that society owes every citizen a comfortable living whether or not he repays society by doing his fair share of the world's work. Under Compulsory Health Insurance the individual who works only half-time is entitled to just as much free medical service and is likely to get much more in sickness benefits than he who works full time. Not only this; it actually encourages immorality and riotous living as the following personal experience well illustrates: As a young man I worked two seasons in a lumber camp. The camp in which I lived comprised between thirty-two and forty men. Of this number only one did not use intoxicating liquor; only two did not use tobacco; and half of the men spent their hard-earned wages either at the saloons in the nearby town or went regularly to the Island or did both. Those who are familiar with the Islands of the upper Mississippi River need no explanation as to why they went there. I wonder how Health Insurance, insuring these men

for loss of time and providing free medical care for them, would have prevented their doing the very things which were the cause of much of their sickness. For my part, I believe that a larger per cent. of them would have gone to the Island if they had felt that they would be protected against loss of time and that they would receive free medical care if they became sick. Health Insurance would actually have increased not only sickness but immorality as well in this camp.

A recent survey of five thousand students at the University of Minnesota found only ten, or two per thousand, with positive Wassermanns. Careful surveys in various parts of the country indicate that about three per cent. or thirty per thousand of the general population of the United States is syphilitic. A Wassermann examination of three thousand prisoners in the Southern Illinois Penitentiary revealed the fact that three in ten or three hundred per thousand were syphilitic. This same ratio undoubtedly pertains to the class most criminals come from and raises the average in the general population.

It is a well-known fact that alcoholics and those suffering from venereal diseases are much more liable to loss of time from sickness than are those not so affected. What right has any just government to take of the earnings of the two first groups without their consent and give them to the third group? A just and humane government protects the weak from oppression and exploitation by the strong and unscrupulous; but a just and wise government does not penalize the strong, industrious, clean-living and thrifty and favor the weak, lazy, shiftless and immoral. Giving the weak, lazy and shiftless undue advantage over the strong, industrious and thrifty actually penalizes and handicaps the latter, interferes with the law "of the survival of the fittest," and must eventually lead to race degeneracy. If the white race persists in this course long enough, the "yellow peril," so often glibly and jokingly mentioned, may become a real menace to western civilization.

All independent writers on the subject state, and even the proponents of Compulsory Health Insurance have to admit, that it has tremendously increased occupational neuroses and that is just what was to be expected and was expected by those who know human nature and

can see just a little further than the ends of their noses.

The following quotation from a paper by William H. Hicks is pertinent: "In accident cases, where the question of compensation is involved, conditioned reflexes are sometimes created by the patients' environment that not only retard recovery but instigate additional symptoms or may lay the foundation for successful malingering."

One of the worst features of Compulsory Health Insurance is that if continued long enough it will crush out of character the three capital I's—Independence, Industry and Integrity. Such schemes are, as Guglielmo Ferrero, the eminent Italian historian rightly says, "artificial," and "While they tide over trifling evils of the moment, they lay up for the future troubles and difficulties and dangers of infinitely greater gravity."

(To be continued)

#### PHYSICAL EXAMINATION RECORD BLANKS ARE AVAILABLE

Physicians may secure copies of the Periodic Physical Examination Records, which were prepared by the Illinois State Medical Society, from the office of the Educational Committee, 185 North Wabash Avenue, Chicago.

#### WE ARE TRYING TO LOCATE ROSE GOODMAN, A REGISTERED NURSE

The United Research Company, the general offices, 125 W. Madison street, Chicago, telephone State 0782, is endeavoring to locate Rose Goodman, a registered nurse, who during the years 1900 to 1910 was employed at the Michael Reese Hospital, Chicago. Miss Goodman was born at Richmond, Virginia, the daughter of Adolph Goodman. The Research Company is endeavoring to find her at this time to advise of an inheritance in need of her care and attention. Any one knowing of the whereabouts of Miss Goodman kindly communicate with the United Research Company.

#### ANNUAL MEETING OF THE AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

The Thirty-seventh Annual Meeting of the American Academy of Ophthalmology and Otolaryngology will be held in Montreal, Canada, September 19th to 23rd, 1932.

Headquarters will be the Mount Royal Hotel.

Dr. S. Hanford McKee of Montreal is the President and Dr. Burt R. Shurly of Detroit, Michigan, the President-elect, and Dr. William P. Wherry of Omaha, Nebraska, the Executive Secretary and Treasurer.

Saturday, September 17th, the Board of Otolaryngology will conduct examinations and on Monday, September 19th, examinations will be conducted by the American Board of Ophthalmic Examiners.

The Annual Golf Tournament will be held on the same day at the Mount Royal Golf Club.

At 9:00 o'clock Tuesday morning, the Scientific Session will open with a Symposium on "The Progress of General Medicine in Relation to Diseases of the Eye, Ear, Nose and Throat." Section meetings will be held in the afternoon on September 20th, 21st, 22nd and 23rd.

The instructional program will consist of 158 conferences under the guidance of 65 instructors. These demonstrations will be held Wednesday, Thursday and Friday mornings. A wide range of subjects will be presented by competent teachers. There will be four special courses: "Histopathology of the Eye," "Histopathology of the Nose, Throat and Ear," "Lesions of the Fundus" and "Clinical Pathology of Otitic Lesions." The instructional program offers the members of the Society unusual opportunities in post-graduate work.

Special research demonstrations will be made by the Research Fellow for Ophthalmology, Dr. Daniel V. Kirby and the Research Fellow for Otolaryngology, Dr. William J. McNally.

At the Teachers' Section Dinner a report will be made on the present methods of undergraduate teaching of Ophthalmology and Otolaryngology.

The visiting ladies will be entertained by golf, tennis, a trip about the harbor and in many other attractive ways.

#### INTERNATIONAL ASSEMBLY OF THE INTER- STATE POST GRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

INDIANAPOLIS, INDIANA

OCTOBER 24, 25, 26, 27, 28, 1932

Monday, October 24, 8:00 A. M.

Diagnostic Clinic (Surgical): Dr. Edward W. Archibald, Professor of Surgery and Director of the Department, McGill University Faculty of Medicine, Montreal, Canada.

Diagnostic Clinic (Surgical): Dr. John M. T. Finney, Professor of Surgery, Johns Hopkins University School of Medicine, Cleveland, Ohio.

Diagnostic Clinic (Surgical): Dr. E. Starr Judd, Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

*Intermission for Review of Exhibits*

Diagnostic Clinic (Medical): Dr. O. H. Perry Pepper, Professor of Clinical Medicine, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Diagnostic Clinic (Surgical): Dr. John M. T. Finney, Professor of Surgery, Johns Hopkins University



School of Medicine, Baltimore, Md.

Diagnostic Clinic (Surgical): Dr. Donald C. Balfour, Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

#### *Noon Intermission*

1:00 P. M.

Diagnostic Clinic (Medical): Dr. Elsworth S. Smith, Professor Emeritus of Clinical Medicine, Washington University School of Medicine, St. Louis, Mo.

#### GALL-BLADDER AND LIVER

Address: "Surgical Lesions of the Common and Hepatic Ducts." Dr. Howard M. Clute, Lahey Clinic, Boston, Mass.

Address: "Factors Affecting the Prognosis of Diseases of the Gall-Bladder." Dr. E. Starr Judd, Rochester, Minn.

Address: "Modern Concepts in the Management of Cardiovascular Diseases." Dr. R. W. Scott, Cleveland, Ohio.

#### *Intermission for Review of Exhibits*

Address: "The Surgical Treatment of Pulmonary Tuberculosis." Dr. Edward W. Archibald, Montreal, Canada.

Address: "Comments on the Group of Diseases Attributed to Filterable Viruses." Dr. O. H. Perry Pepper, Philadelphia, Pa.

Address: "Prognosis and Treatment of Ambulatory Cases Presenting the Anginoid Syndrome." Dr. Elsworth S. Smith, St. Louis, Mo.

#### *Dinner Intermission*

7:00 P. M.

Address: "Surgical Treatment of Ulcer." Dr. Donald C. Balfour, Rochester, Minn.

Address: "Diagnosis and Surgical Treatment of Cancer of the Stomach." Dr. John M. T. Finney, Baltimore, Md.

#### OTO-LARYNGOLOGY

Address: "Medical Treatment of the Diseases of the Ear, Nose and Throat." Dr. Perry G. Goldsmith, Professor of Oto-Laryngology, University of Toronto Faculty of Medicine, Toronto, Canada.

Address: "Cancer of the Larynx." Dr. Fielding O. Lewis, Professor of Laryngology, Jefferson Medical College, Philadelphia, Pa.

#### *Tuesday, October 25, 8:00 A. M.*

Diagnostic Clinic (Surgical): Dr. George P. Muller, Professor of Clinical Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Diagnostic Clinic (Medical): Dr. David P. Barr, Professor of Medicine, Washington University School of Medicine, St. Louis, Mo.

Diagnostic Clinic (Gynecological): Dr. John R. Fraser, Professor of Obstetrics and Gynecology, McGill University Faculty of Medicine, Montreal, Canada.

#### *Intermission*

Diagnostic Clinic (Surgical): Dr. Frank H. Lahey, Lahey Clinic, Boston, Mass.

Diagnostic Clinic (Medical): Dr. Lewellys F. Barker, Professor Emeritus of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

Diagnostic Clinic (Surgical): Dr. Eugene H. Pool, Clinical Professor of Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

#### *Noon Intermission*

1:00 P. M.

Diagnostic Clinic (Medical): Dr. Warfield T. Longcope, Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

#### THE ABDOMEN

Address: "The Importance of Rotentgenological Studies of the Right Upper Abdominal Quadrant." Dr. James M. Martin, Professor of Radiology, Baylor University School of Medicine, Dallas, Texas.

Address: "The Acute Abdomen." Dr. George P. Muller, Philadelphia, Pa.

Address: "Surgery of the Spleen." Dr. Eugene H. Pool, New York, N. Y.

#### *Intermission*

#### THE THYROID GLAND

Address: "The Effects of Diseases of the Thyroid Gland on the Heart." Dr. David P. Barr, St. Louis, Mo.

Address: "The Treatment of Hyperthyroidism." Dr. Frank H. Lahey, Lahey Clinic, Boston, Mass.

Address: "Parathyroidism." Dr. Max Ballin, Head of the Surgical Department, Harper Hospital, Detroit, Michigan.

#### *Dinner Intermission*

7:00 P. M.

Address: "Significance of Chronic Pelvic and Abdominal Pain in Women." Dr. John R. Fraser, Montreal, Canada.

Address: "The Senile Patient." Dr. Lewellys F. Barker, Baltimore, Md.

Address: "Diseases of the Skin Due to Animal Parasites." Dr. Frank C. Knowels, Professor of Dermatology, Jefferson Medical College, Philadelphia, Pa.

Address: "Different Types of Hernia and Their Treatment." Dr. Arthur Dean Bevan, Chicago, Illinois.

Motion Picture: "Cardiac, Vasomotor and Respiratory Phenomena with an analysis of the Signs and Symptoms of Experimentally raised Intercranial Pressure."

A talking motion picture prepared by Professor Anton J. Carlson and Professor Arno B. Luckhardt, Department of Physiology, University of Chicago, under a special grant from Petrolagar Laboratories.

#### *Wednesday, October 26, 8:00 A. M.*

Diagnostic Clinic (Medical): Dr. Cyrus C. Sturgis, Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

Diagnostic Clinic (Surgical): Dr. Irvin Abell, Clinical Professor of Surgery, University of Louisville School of Medicine, Louisville, Ky.

Diagnostic Clinic (Pediatric): Dr. Alan G. Brown,

Professor, Diseases of Children, University of Toronto Faculty of Medicine, and Physician-in-Chief, Hospital for Sick Children, Toronto, Canada.

#### *Intermission*

Diagnostic Clinic (Surgical): Dr. Arthur Dean Bevan, Chairman of the Department of Surgery, Rush Medical College of the University of Chicago, Chicago, Ill.

Diagnostic Clinic (Pediatric): Dr. William McKim Marriott, Professor of Pediatrics and Dean, Washington University School of Medicine, St. Louis, Mo.

Diagnostic Clinic (Surgical): Dr. John F. Erdmann, Professor of Surgery, Columbia University, and Director of Surgery, Post Graduate Hospital of Columbia University, New York, N. Y.

#### *Noon Intermission*

1:00 P. M.

Diagnostic Clinic (Pediatric): Dr. Harold B. Cushing, Clinical Professor of Pediatrics, McGill University Faculty of Medicine, Montreal, Canada.

Diagnostic Clinic (Surgical): Dr. Dean D. Lewis, Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Moving Picture Demonstration: "Ureterosigmoidal Transplantation" and presentation of cases by lantern slides. Dr. Waltman Walters, Associate Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Address: "Pernicious Anemia." Dr. Cyrus C. Sturgis, Ann Arbor, Michigan.

#### *Intermission*

#### INTESTINES

Address: "Non-Specific Granuloma of the Gastro-Intestinal Tract." Dr. John F. Erdmann, New York, N. Y.

Address: "The Diagnosis and Treatment of Diverticulitis and Diverticulosis of the Colon." Dr. Irvin Abell, Louisville, Ky.

Address: "Constipation." Dr. Warfield T. Longcope, Baltimore, Md.

#### *Dinner Intermission*

7:00 P. M.

Address: "The Present Status of Surgery of the Vascular System." Dr. Dean D. Lewis, Baltimore, Md.

#### PEDIATRICS

Address: "Poliomyelitis." Dr. William McKim Marriott, St. Louis, Mo.

Address: "Common Errors in the Diagnosis and Treatment of Children's Diseases." Dr. Alan G. Brown, Toronto, Canada.

Address: "The Diagnosis of Some of the Contagious Diseases in Children." Dr. Harold B. Cushing, Montreal, Canada.

*Thursday, October 27, 8:00 A. M.*

Diagnostic Clinic (Surgical): Dr. John J. Moorhead, Professor of Surgery, New York Post-Graduate

Medical School, Columbia University, New York, N. Y.  
Diagnostic Clinic (Urological): Dr. William E. Lower, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic (Medical): Dr. Charles A. Elliott, Professor of Medicine, Northwestern University School of Medicine, Chicago, Ill.

#### *Intermission*

Diagnostic Clinic (Urological): Dr. Hugh H. Young, Clinical Professor of Urology, Johns Hopkins University School of Medicine, Baltimore, Md.

Diagnostic Clinic (Surgical): Dr. William Darrach, Dean Emeritus and Professor of Clinical Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Diagnostic Clinic (Medical): Dr. Campbell P. Howard, Professor of Medicine, McGill University Faculty of Medicine, Montreal, Canada.

#### *Noon Intermission*

1:00 P. M.

Diagnostic Clinic (Urological): Dr. Hugh Cabot, Mayo Clinic, Rochester, Minn.

Address: "The Leukemias—Their Significance and Their Treatment." Dr. Charles A. Elliott, Chicago, Ill.

Address: "The Teaching of Ophthalmology in This Country." Dr. Walter R. Parker, Emeritus Professor of Ophthalmology, University of Michigan Medical School, Ann Arbor, Mich.

#### *Intermission*

#### THE GENITO-URINARY SYSTEM

Address: "A More Hopeful Outlook for the Prostatic." Dr. William E. Lower, Cleveland, Ohio.

Address: "The Management of the Senile Prostate." Dr. Joseph F. McCarthy, Director and Professor, Department of Urology, New York Post-Graduate Medical School, Columbia University, New York, N. Y.

Address: "Recent Progress in Renal Surgery." Dr. Hugh H. Young, Baltimore, Md.

Address: "The Problem of Drainage in Preparation for Operations for Prostatic Obstruction." Dr. Hugh Cabot, Mayo Clinic, Rochester, Minn.

#### *Dinner Intermission*

7:00 P. M.

#### BONES AND JOINTS

Address: "Critical Review of the Treatment of Fractures." Dr. William Darrach, New York, N. Y.

Address: "Chronic Arthritis." Dr. Edwin W. Ryerson, Professor of Orthopedic Surgery, Northwestern University Medical School, Chicago, Ill.

Address: "The Treatment of Automobile Injuries." Dr. John J. Moorhead, New York, N. Y.

Address: "The Etiology and Treatment of Nephritis." Dr. Campbell P. Howard, Montreal, Canada.

*Friday, October 28, 8:00 A. M.*

Diagnostic Clinic (Medical): Dr. Emanuel Libman, Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons, New York, N. Y.



Diagnostic Clinic (Surgical): Dr. George W. Crile, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic (Medical): Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard Medical School, and Physician-in-Chief, Peter Bent Brigham Hospital, Boston, Mass.

*Intermission*

Diagnostic Clinic (Medical): Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard Medical School, Boston, Mass.

Diagnostic Clinic (Surgical): Dr. Charles H. Frazier, John Rhea Barton Professor of Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Diagnostic Clinic (Medical): Dr. Harlow Brooks, Emeritus Professor of Clinical Medicine, New York University and Bellevue Hospital Medical College, New York, N. Y.

*Noon Intermission*

1:00 P. M.

Diagnostic Clinic (Surgical): Dr. William D. Haggard, Professor of Clinical Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.

Introduction of Dr. William J. Mayo, President-Elect, by Dr. Arthur Dean Bevan, President of the Association.

Address: "The Differential Diagnosis of Brain Tumor." Dr. Charles H. Frazier, Philadelphia, Pa.

Address: "The Present Status of the Diabetic Child." Dr. Elliott P. Joslin, Boston, Mass.

Address: "Operations on the Adrenal Glands." Case Reports Illustrating Specific Clinical Effects: Peptic Ulcer, Neurocirculatory Asthenia, Hyperthyroidism." Dr. George W. Crile, Cleveland Clinic, Cleveland, Ohio.

*Intermission*

Address: "Essential Hypertension—Its Implications and Treatment." Dr. Harlow Brooks, New York, N. Y.

Address: "Immediate and Ultimate Prognosis in Cardiac Disease." Dr. Emanuel Libman, New York, N. Y.

Address: "Pharmacological Action of Digitalis." Dr. Henry A. Christian, Boston, Mass.

**BANQUET**

*Friday Evening, October 28, Claypool Hotel*

Addresses by Distinguished Citizens of the World.

**HANDICAPPED**

The lawyer tried to confuse the doctor who was testifying as an expert.

"I tell you I don't care what you think; I only want to hear you talk about what you *know*." And he pounded his desk.

"Then I might as well get off the stand," the doctor said. "I personally cannot talk without thinking. I am not a lawyer."—*Colorado Medicine*.

**Correspondence**

**WOMEN'S CLUBS SEEK CONSULTATION  
AND GUIDANCE IN HEALTH  
PROJECTS**

533 Diversey Parkway, Chicago,

August 19, 1932.

Miss Jean McArthur, Secretary,  
Educational Committee,  
Illinois State Medical Society,  
185 North Wabash Avenue,  
Chicago, Illinois.

My dear Miss McArthur:

As State Chairman of Public Health, Child Hygiene, and Mental Hygiene of the Illinois Federation of Women's Clubs, I should like to place before you my proposed working program.

As you may know, I have a District Chairman in each of the Congressional districts of the State. It is my plan to have each District Chairman, or her representative, seek a conference with a designated member of each County Medical Society.

I should like to be able to give each of my chairmen the name of a pivotal representative of the Medical Society in each county, to whom she may go for consultation and guidance in health projects best suited to the needs of the community. In such projects I earnestly hope for medical leadership.

I am asking each Chairman to ascertain for me what, in her opinion, seems to be the health need of the various counties in her district. In the meantime you might wish to secure similar information from the County Medical groups, and these data can then be correlated.

I feel that the physicians will benefit by thus inaugurating the health work in their communities, and the club women will profit by the expert counsel they will receive.

Hoping that we will have this work well under way in the early fall, I am

Very cordially yours,

(Signed) LENA K. SADLER,

State Chairman of Public Health, Child Hygiene, and Mental Hygiene.

Driver of car (unfamiliar with the road)—I take the next turn, don't I?

Muffled male voice from the back seat—Like hell you do!—*Dartmouth Jack-o-Lantern*.

## Original Articles

### THE TOXEMIAS OF PREGNANCY AND THEIR END RESULTS FROM THE VIEWPOINT OF IN- TERNAL MEDICINE\*

W. W. HERRICK, M. D.

NEW YORK CITY

When one is asked to give a precise definition of the unfortunate and probably misleading term "Toxemia of Pregnancy," he finds himself in difficulty. This difficulty is lack of knowledge—a lack which makes it necessary to replace definition with description. The term is applied to a variety of disturbances which may attend pregnancy. Any pregnant woman showing high blood pressure, albuminuria, edema, convulsions, pernicious vomiting, certain types of non-obstructive jaundice, severe anemia, or even a disturbed mental state is said to be "toxic" or to have a "toxemia of pregnancy." These serious conditions may occur singly or in any combination. To unravel such a tangle of symptoms, to separate one type of disturbance from another, to place these upon any etiologic, pathologic or clinical basis that is practical or helpful at the bedside is not simple. One who is dogmatic in this matter is either very courageous or very inexperienced. Study reveals the fact that some of the disturbances occur early in pregnancy and some late. An obvious separation of the early toxemias and the late toxemias may therefore be made.

*The Early Toxemias.* These are characterized chiefly by pernicious vomiting and its consequences. The cause of pernicious vomiting of pregnancy we do not know. Reflex and toxic factors are apparent. Its result is starvation and dehydration as shown by loss in weight, desiccation, low blood pressure, rapid pulse, exhaustion, often by icterus, perhaps coma and death. The characteristic pathological changes can be reproduced by starvation. These are predominantly a fatty metamorphosis of the liver which may progress to the point of a necrosis or to an actual acute yellow atrophy. Similar, though less marked, degenerative

changes may be found in the kidney and heart muscle. In a single case of hyperemesis gravidarum, Bell<sup>1</sup> found, in addition to enlarged and anemic glomeruli, a definite narrowing of the glomerular capillaries produced by a marked thickening of the capillary basement membrane. These changes are found also in the kidney of eclampsia and pre-eclampsia. A relationship of these types of disturbance is suggested but by no means proved by this single observation. A point against such a relationship is that serious vomiting is usually seen in the fragile, relatively infantile type of woman—a type differing notably from that characteristically affected with the late toxemias. The condition often rights itself spontaneously when a certain stage of pregnancy is reached and is practically always relieved by emptying the uterus.

While the immediate effects of pernicious vomiting of pregnancy are grave, and death from exhaustion or from liver atrophy is not infrequent, the end results of this early disturbance of pregnancy are not serious. Cases that recover, recover completely and rapidly without sequelae. So far as is known, the liver regenerates with great rapidity and there is no increased liability to cirrhosis or other chronic degenerative condition of this organ and, with the single exception cited, none to chronic renal disease. From the viewpoint of after effects, this condition in the present state of our knowledge may therefore be disregarded.

*The Late Toxemias.* The so-called toxic disturbances which mark the latter half of pregnancy, especially the last trimester, are of greater complexity and perhaps of greater medical interest. The dominant symptoms are in the cardiovascular field, the kidney, the liver, nervous system, perhaps the blood-forming and blood-destroying organs. Hypertension, edema, albuminuria, oliguria or anuria, bilirubinemia, icterus, convulsions, anemia, epigastric pain and tenderness; these may be seen in any combination or singly. Classification of these is largely a matter of opinion and debate.

Before entering upon such a field of controversy, it is well to state the main object of this contribution. This is an attempt to co-relate these typical disturbances of late pregnancy and especially their after effects with other medical conditions observed apart from pregnancy. The suggestion will be made that these late toxemias

\*From the Departments of Practice of Medicine and of Obstetrics & Gynecology, College of Physicians & Surgeons, Columbia University and the Sloane Hospital, New York.  
Read before Joint Session, Illinois State Medical Society, Springfield, May 17, 1932.



may not be a thing apart but may be manifestations of well recognized clinical states modified somewhat by the presence of the fetus. Such proof as is available from the pathologist and from the clinic will be brought to bear upon this problem.

#### NEPHRITIS IN PREGNANCY. THE NEPHRITIC TOXEMIAS

In connection with the toxemias of pregnancy, the term nephritis is most commonly used and often very loosely. It should be confined to conditions in which the kidney is primarily affected and should be differentiated from primary vascular disease with secondary involvement of the kidney.

Simonds<sup>2</sup> has divided diseases of the kidney into those which primarily affect the secreting apparatus, the glomeruli and tubules, and those which primarily affect the vascular mechanism of the kidney. While such a separation has much to recommend it and is practically helpful, it must be appreciated that the glomerulus is not only a secreting but also a vascular mechanism and may be affected by agents acting upon either blood vessels or secreting cells and membranes. It may be hazarded that diseases affecting primarily the vascular mechanism are usually if not always part of a general cardiovascular disease and less likely to be of primary renal origin.

Conditions in pregnancy to which the term nephritis should be confined appear to be affections largely of the secreting mechanism. They are variously termed nephrosis, parenchymatous nephritis and glomerulo-nephritis. Pathologically these are characterized by degeneration with inflammation. The kidneys are swollen, the epithelium of tubules and glomeruli is degenerated while the later stages may be marked by fibrous tissue replacement. Obstruction of capillaries may result in atrophy of tubules and glomeruli. Alteration in basement membrane and epithelium leads to increased permeability of the renal filter. This accounts for the albuminuria and for the absence of nitrogen retention excepting in cases where the damage is extreme. The edema which is so characteristic of this type depends upon alteration in osmotic relations resulting from the loss of serum-albumin from the blood and the retention of crystalloids in the tissues. As Simonds remarks, high blood pressure is not a part of the disease *per se*. It appears late in its course perhaps as a compensa-

tory mechanism, the apparent result of reduction in effective glomerular filtration surface to the point of requiring increased filtration pressure to maintain renal function. While the so-called nephrotic type may, along with the milder types of glomerulo-nephritis, heal without trace, the majority go on to a progressive degeneration with replacement fibrosis. In this end stage there is usually involvement of the entire cardiovascular system and, except on a basis of the history, it is impossible to differentiate a primary nephritis in its advanced phases from the end stage of chronic hypertensive cardiovascular disease with unusual emphasis on the vessels of the kidney.

From a clinical point of view, the picture of nephritis during pregnancy is characterized chiefly by a prolonged and marked albuminuria. In other types of late toxemia, albuminuria may occur but it is either slight or is not of long duration. In eclampsia and preeclampsia, it usually occurs suddenly and after other manifestations of the disturbance have been present for a longer or shorter time. Another definite feature of the clinical aspect of nephritis not found in other toxemias is retention of nitrogen in the circulating blood. This need not be present but when it is, it is a hall-mark of renal insufficiency. Albuminuric retinitis and uremic convulsions when present also are characteristic. Other symptoms are not obligatory and may be common to nephritis of pregnancy and other late toxemias. These are edema, oliguria, anuria, anemia, hypertension, and, in cases of long standing, sclerosis of the larger or smaller arteries with cardiac hypertrophy. The degree of the disturbance appears to parallel the size of the fetus. Renal insufficiency in pregnancy, therefore, occurs late. A latent nephritis may be brought to light or an established nephritis aggravated by an advancing pregnancy. There is small threat to the life of the mother. When the disturbance has reached a dangerous degree, fetal death occurs. After this the severity of the symptoms usually declines. Death of the fetus which occurs in about 60% of the cases of true nephritis of pregnancy often has as its basis an extensive infarction of the placenta. The fetus may be delivered prematurely or some time after death in a macerated state. The greater the rise in blood pressure and the greater the albuminuria, the more likely is fetal death to

occur. Retention of uric acid and urea nitrogen in the blood is a feature of the more severe cases.

The course of the nephritis of pregnancy after delivery is a matter of great importance. In the milder cases the evidences of the disease may disappear during the late puerperal period. However, if cases of this kind are observed a few months later, albumin, hypertension or edema may be found in a considerable proportion. On the other hand the manifestations of the disease may not disappear post partum but continue with little or no abatement after delivery. Cases with the most severe symptoms during pregnancy are most likely to have persistent nephritis in after life.

That these views are shared by other students of this subject is apparent from certain follow-up studies. In drawing conclusions from these, allowance must be made for different methods of classifications and particularly for the fact that most obstetricians class as nephritic any patient showing high blood pressure, albuminuria or edema,—symptoms which are common to cardiovascular disease and nephritis. Some of these studies may be cited.

Gibberd<sup>3</sup> observed 47 toxic patients in successive pregnancies, all having healthy kidneys prior to the first observed pregnancy. Of these six, or 13%, had signs of permanent renal damage persisting a year or longer after delivery. In twenty-seven patients in whom the first albuminuric pregnancy was terminated within three weeks of the time the albuminuria first appeared, albuminuria recurred in the next pregnancy in eleven, or 40%. In fourteen patients in whom pregnancy was terminated later than three weeks after albuminuria was first observed, the recurrence rate was 70%. In this study the recurrence rate is, therefore, related to the duration of the albuminuria.

Clow<sup>4</sup> traced twenty-eight cases of severe toxemia of pregnancy. No patient in this series gave a history of nephritis previous to the pregnancy in which toxemia occurred. In 50% of the cases over ten years had elapsed since the toxic pregnancy. One patient had eclampsia in four successive pregnancies; three had severe toxemia in three successive pregnancies, and four in two successive pregnancies. Hypertension, i. e., systolic blood pressure above 140, was found in 65% of these patients; their average

age was 40.2 years. The symptoms complained of were dyspnea and palpitation on slight exertion, dizziness, nycturia and in two cases anginal pains. Evidence of renal change was found in ten cases. The author concludes that toxic pregnancy leaves significant after effects in a considerable proportion of cases and that women who have passed through a toxic pregnancy require careful attention in succeeding years.

Margeson<sup>5</sup> reports a study of fifty-six cases of pregnancy toxemia in his private practice; in a number of these cases there was a family history of toxemia; over 70% of the patients were primiparae. Convulsions took place in nine cases with one maternal death. In 28% of these cases there was a recurrence of toxemia in successive pregnancies. Repeated pregnancies in women with chronic nephritis are accompanied by a steadily increasing fetal and maternal mortality.

In 1927, Corwin and Herrick,<sup>6</sup> studied sixty-four cases in which during pregnancy nitrogen retention or prolonged and marked albuminuria were present and which were classified as nephritic. During the toxemia, fifty-five of these had a blood pressure above 140 mm.; 32% cardiac hypertrophy; 42% demonstrable thickening of the larger peripheral arteries; 66% vascular or albuminuric retinal changes. The fetal mortality was 47%. In those with blood pressure over 190 mm. it was 79%. There were no maternal deaths during the puerperium and but two in the follow-up period. In the follow-up of these sixty-four patients, which covered from six months to six years post partum, the pathologic findings varied directly as the height of the blood pressure during pregnancy. Of those having readings under 140, none had hypertension in the follow-up and but 10% had marked albuminuria. Only 20% had retinal changes. The group with blood pressure from 140 to 190 showed hypertension in 49%, marked albuminuria in 54%, retinal changes in 45%. Figures in this follow-up study for the group with pressures above 190 mm. during pregnancy were hypertension, 80%; albuminuria, 47%; and retinal changes, 85%. Twelve of these women were studied in later pregnancies. Among these were five fetal deaths.

Peckham<sup>7</sup> summarizes a four-year follow-up study of 343 cases from which examples of



toxemic vomiting and eclampsia are excluded. He states that definite signs of chronic nephritis were found in 137 or 40%. This writer confirms the observations of Corwin and Herrick made in 1927 that the status of these patients in the puerperium gives no final indication of the ultimate result of the toxemia. Patients without albuminuria and hypertension upon discharge from the hospital may show both within a few months. On the other hand such abnormal findings during the puerperium may disappear later. Obviously this study makes no attempt to distinguish nephritis and hypertensive cardiovascular disease.

Allowing for differences in methods of classification, these observations seem to justify the conclusion that the woman giving definite indication of a substandard kidney during pregnancy is an increasingly poor risk in subsequent pregnancies and will, in a large proportion of cases, show advancing trouble in the follow-up period apart from pregnancy. As a practical matter one should therefore discourage pregnancy in a nephritic woman as being unprofitable because of the great liability to fetal death and because of the certain damage to the maternal kidney, the inescapable impairment of health and the shortening of life.

#### HYPERTENSIVE CARDIOVASCULAR DISEASE AND THE LATE TOXEMIAS OF PREGNANCY

Before attempting the correlation of the remaining groups of the late toxemias of pregnancy with other general medical conditions, it is necessary to establish certain points. The differentiation of nephritis and of hypertensive cardiovascular disease or hyperpiesis is one which, at least in the early stages of these disorders, is reasonably clear to the modern internist. To establish this differentiation, a clear conception of hyperpiesis is essential. This is primarily a functional disorder in which inheritance and personality play important roles. In its early stages, it is characterized by an undue responsiveness on the part of the circulation to stimuli from within or without. This is chiefly shown by an exaggerated rise in the pulse rate and blood pressure in response to such stimuli. As time goes on this occasional rise in blood pressure becomes more frequent and eventually the pressure becomes fixed at higher levels. Apparently as a result of this vascular strain, sec-

ondary changes take place in the cardiovascular tree. Particularly characteristic are thickening and eventually degeneration in the small arteries, an arteriolosclerosis. While this is most common and often most marked in the kidneys, it takes place also in the arteries of the spleen, retina, pancreas, liver, brain and heart. The most common result is cardiac insufficiency or apoplexy. Renal insufficiency is rarely the cause of death. When it occurs, it is the result of a reduction in the amount of functioning renal tissue through narrowing of the arterioles of the kidney and anemic necrosis with fibrous tissue replacement.

This disease, which affects the kidney secondarily and only through its arterioles, should be recognized as a general cardiovascular disorder and set apart from nephritis. The term nephritis should be confined strictly to primary affections of the kidney. The latter are chiefly of the secreting mechanism. It is true that the cardiovascular system as a whole may be secondarily affected by renal disease particularly that of the glomeruli and that its end stage cannot be differentiated from that of the arteriolosclerosis, the end-stage of hyperpiesis. However, in the early phases these conditions usually are capable of clinical and pathological differentiation.

How does this apply to the disorders of late pregnancy? One of the most definite varieties of late toxemia is the acute convulsive or eclamptic type, occurring most commonly in elderly and overweight primiparas. Its most dramatic feature is the convulsion. However, this is almost always preceded for hours or days by other important symptoms such as high blood pressure, albuminuria, edema, mental and nervous variations from the normal, epigastric pain and tenderness, bilirubinemia, visual disturbance with acute diffuse edema of the retina and occasionally retinal separation.

In offering a tentative suggestion that this disturbance may be primarily vascular in character, one might classify the evidence as pathological and clinical. The pathological evidence is meager, somewhat theoretical and not satisfying. It is nevertheless suggestive. The idea of arterial spasm as a factor in eclampsia has been repeatedly discussed. Hinselmann,<sup>8</sup> Volhard,<sup>9</sup> Fahr,<sup>10</sup> and others have brought forward this idea to account for the acute renal changes of eclampsia and as an explanation of the convul-

sions and edema. Fahr finds in the eclamptic kidney thickening, nuclear increase and hyalinization of the arterioles. In the acute phase, the chief change is widening and swelling of the capillary walls of the glomeruli. The glomeruli are poor in blood and undergo fatty changes of a glomerulo-nephritis. Swelling and thickening of the arterial walls especially those of the vas afferens are found. Fatty changes occur in the proximal parts of the tubules. An arterial anemia following spasm is invoked as the causative agent of these changes. Cohnstein<sup>11</sup> suggests as a cause of this arterial spasm an overactivity of the sympathetic or a "Dyshormonie." This theory anticipates Cannon's<sup>12</sup> theory of homeostasis as a basis of certain diseases of function, a theory which appears to have some application to the problem in hand and to which attention will be called later. Bell<sup>1</sup> has lately confirmed many of these findings. He describes arteriolar sclerosis as an occasional feature of the eclamptic kidney along with a narrowing of the glomerular capillaries by an increase in the thickness of the basement membrane or an increase in endothelial cells. In a case with history of eclampsia seven years before, Bell found focal hyaline areas in the glomeruli with partial or complete glomerular obliteration and varying degrees of tubular atrophy. He believes this is a peculiar form of renal disease due to eclampsia. Acceptance of this statement must await further studies. The arteriosclerosis and the thickening of the capillary basement membrane often to the point of obliteration of groups of glomerular capillaries with resulting disuse atrophy of tubules is a picture not very different from that described in arteriosclerosis, the result of essential hypertension. Whether remote structural effects of eclampsia upon the kidney can be differentiated from those of essential hypertension is a point of more than ordinary importance and one which should have the attention of the pathologist. Werner-Gerlach<sup>13</sup> states that a disturbance of circulation in the arteries of the liver is a necessary factor in the thrombosis of liver capillaries that is such a feature of eclampsia. The "cyanotic atrophy," the hemorrhagic infarction, the necrosis, the occasional fibrous tissue replacement, even calcification in healing and the hyaline degeneration found in the arterioles would seem to indicate that however unlike anything observed in ordi-

nary vascular disease the liver necrosis of eclampsia may be, the circulatory components in this complex cannot be ignored.

A question of great importance is establishing a possible association of eclampsia and hyperpiesis is that of changes in the arterioles outside the kidney. Is there an arteriosclerosis in the spleen, pancreas, mesentery and brain as an immediate or remote sequel of eclampsia as of hyperpiesis?

On the clinical side there is much to be said for the fundamental vascular nature of eclampsia. In the first place eclampsia occurs in the same constitutional type of female that is most prone to cardiovascular disease with hypertension—the overweight, stocky, short, heavily muscled, with heterosexual hair distribution and certain marks suggesting alteration in function of the pituitary gland (Draper<sup>14</sup>). Again, excepting in the rarest of instances, hypertension is the initial symptom and precedes albuminuria and convulsions by a greater or less period.

The general follow-up studies in eclampsia give very little help in furthering our knowledge of the proper classification of this condition. In the accompanying table are summarized the chief of these. Insofar as they show certain serious and prominent after effects of eclampsia, these are important. In defining the precise character of these results in modern medical terminology, they are not important. It has been the practice of the obstetrician to classify as nephritis any case showing variations from the normal in any part of the cardiovascular-renal field. No attempt has been made to differentiate these disturbances which are primarily nephritic from those which are primarily circulatory in origin.

In a study of fifty-six convulsive cases in the Sloane Hospital followed in 1917 by Corwin and Herrick, an attempt was made to view these from a medical angle. Among these fifty-six hypertension was observed in all but two; the average pressure was 185/113. During the acute phases of the disorder, 65% of these women revealed variations from the normal in the retina upon ophthalmoscopic examination. Retinal edema was present in twenty-two; demonstrable changes in the blood vessels in fifteen; patchy exudate in twelve; hemorrhage in eleven. Four cases showed retinal pigmentation and two retinal detachment. Seventy-eight per cent of these cases



had a generalized edema. There was a maternal mortality of 14%; fetal mortality, 55%. Follow-up studies covering a period from six months to six years were made on forty-four of these patients. In 32% a persistent hypertension was found. Sixty-one per cent revealed some vascular or other anomaly upon ophthalmoscopic examination. Ten per cent had edema and 34% some degree of albuminuria. Thirteen of these cases were observed in later pregnancies. Nine of these were marked by toxemia with four fetal deaths. One patient was curretted because of an established chronic nephritis. In a series of one hundred fifty-four toxic multiparae, 13% gave history of convulsions in a former pregnancy.

From studies of this kind it is indeed difficult to reach any conclusions. Standards differ among different observers. Most of the published studies do not take account of the mortality among those who have had eclampsia. Some as yet unpublished studies by Tillman and myself seem to indicate that this is decidedly higher than the expected average of women of an equal age group. Again these observations are largely those of obstetric surgeons many of whom are not wont to view cardiovascular-renal problems from their medical aspect. For the present it would seem safe to predict that at least 20% of those who have escaped the average mortality of 14% of the acute eclamptic seizure will show clinical evidence of scars in their cardiovascular-renal apparatus in the years following their pregnancy. While from the data in hand one cannot decide whether these are the result of an insult primarily of the kidney or one including the cardiovascular system at large, the weight of evidence inclines to the latter view.

There remains for discussion the largest group of the late toxemias of pregnancy. These have been variously labeled pre-eclamptic, sub-standard kidney, sub-acute, hypertensive toxemia, recurrent toxemia or chronic nephritis. Many of these present all the features of eclampsia excepting convulsions and are obviously a similar disturbance. Others appear to be different. They are much milder in their course. However, when one recounts the symptoms of this large group, one finds that they include most of those mentioned in connection with nephritis excepting a prolonged and marked albuminuria or retention of nitrogen in the circulating blood. The most frequent features of this group are

hypertensive vascular changes in the retina varying from arterial spasm to arteriosclerosis with or without hemorrhage and with little or no exudate or edema; an albuminuria which occurs suddenly, late and after the hypertension has existed for some time; an edema of which the same remarks may be made; a constitutional type identical with that observed in eclampsia; a liability to fetal death in about 30% of cases, often the result of placental separation from apoplexy or infarction; a great liability in the follow-up to the manifestations of what in medical circles is called hypertensive cardiovascular disease and which is still too commonly called chronic nephritis.

The relation of this group of cases to other medical conditions can be suggested from the necropsy and from the clinic. The pathological changes in the kidney in pre-eclampsia have repeatedly been shown to be similar to or identical with those noted in typical eclampsia (Fahr, Bell).

Among the milder toxemias included in this group in which there is no convulsion and which are characterized by mild hypertension with or without albuminuria and edema and a prolonged course with a favorable outcome, there are no necropsy studies. For the proper classification of cases of this type, one must depend upon clinical observation. Here the evidence is ample and satisfying. The clinical aspect of this toxemia may be approached by relating what occurs in a case of hypertensive cardiovascular disease during pregnancy.

When pregnancy occurs in a woman with a resting blood pressure above 145 systolic and who has no albuminuria or other evidence of renal disturbance, a very constant series of events may be anticipated. As pregnancy advances the blood pressure rises, the diastolic at least in proportion to the systolic. This rise in blood pressure is the sole manifestation of trouble until a level of 175-180 mm. or more systolic is reached. At this point albuminuria, then decline in urinary output and edema are suddenly added. Even at this phase of the disturbance, there is no retention of urea nitrogen in the circulating blood and, excepting an occasional increase in uric acid, no sign of renal breakdown other than the diminished urinary output and albuminuria. Usually, however, the blood pressure continues to rise, the evidence of general

and of renal insult increases, the patient becomes psychically disturbed and in rare instances convulsions may be the climax. Some may develop a mild mental disturbance, exaggerated reflexes with hypertension, edema, and albuminuria, not going on to a convulsive state. Cases of this kind are well called pre-eclamptic. In this cardiovascular, hypertensive or subacute form of toxemia of pregnancy, we are dealing with a relatively mild process and one in which there is rarely any immediate threat to the mother's safety. Maternal deaths are extraordinarily rare and when they occur are due to a cardiac insufficiency, an apoplexy or a secondary infection.

There is great threat to the safety of the fetus. In about 30% of cases there is placental separation with more or less bleeding followed by intrauterine death and a fetus which may be expelled at once or later, often in a macerated condition. The remainder of these mothers go on to delivery, usually of a normal child. With the emptying of the uterus, the albuminuria, the edema and the other symptoms usually clear away with the possible exception of the rise in blood pressure. This may or may not return to normal after delivery. In the majority in whom the blood pressure findings are normal, the medical attendant should not accept such evidence at its face value. The follow-up of cases of this character reveals that in the months or years following a pregnancy marked by such disturbance, the blood pressure may again become elevated and many patients will present the stigmata of advancing cardiovascular disease.

The majority of patients who can be placed in this group do not show the disturbance until the later months of pregnancy. In the follow-up, however, they are likely to reveal the same symptoms though often in lesser degree, as those entering upon pregnancy with the disturbance fully developed.

Extensive follow-up studies in cases of this character are few. Many group these examples of essential hypertension with those having definite nephritis. Some of the milder types have been called substandard kidney, a term which is misleading and probably incorrect since it tends to emphasize the minority which end in renal breakdown and to divert attention from

the majority with terminal apoplexy or cardiac failure.

Berman<sup>15</sup> publishes a study of 225 cases of toxemia observed in more than one pregnancy. In these there was recurrence of toxemia in about 85%, this return being but little more frequent in those showing the higher rise of blood pressure in the initial disturbance. The incidence of "nephritis," however, rose in those showing the higher levels of blood pressure. In this group of patients the incidence of toxemia increased with the parity of the patients; 63% of the para II and 100% of the para VII showing recurrent toxemia. The incidence of "nephritis" also increased with parity in like manner the percentage advancing from 6% in the para II to 49% in the para VIII. Berman concludes that the incidence of cardiovascular-renal disease increases with each succeeding pregnancy; that once a patient has had toxemia she should be studied carefully between pregnancies and in future pregnancies receive exceptional prenatal care. He states that only by limiting the number of pregnancies can we hope to curtail the large percentage of cardiovascular-renal disease.

Corwin and Herrick studied 175 instances of this non-convulsive, non-nephritic, sub-acute variety of toxemia. Antepartum, 23% showed cardiac hypertrophy; 27% thickening of the brachial arteries; 55% changes in the vessels of the retina. The fetal mortality was 15%. There were no maternal deaths. In the follow-up 40% showed blood pressures above 140 mm., 40% cardiac hypertrophy; 34% thickening of the larger peripheral arteries; 63% retinal vascular changes. Albuminuria was exceptional. Of the whole group 74% revealed some important change in the cardiovascular system in the follow-up. Of great importance is the reaction of these women to successive pregnancies. Sixty-three of these 175 patients were thus observed. Eleven of the sixty-three had hypertension only in the last of a series of pregnancies. Fifty-two were studied in pregnancies subsequent to the one in which toxemia was first shown. Fifty, or 96%, of these had recurrence of hypertension. In twenty-one there was higher blood pressure; in sixteen the readings were about the same; and in six the pressure was lower in the later pregnancies. In forty-four of the cases followed when not pregnant,



twenty-seven, or 61%, had blood pressure above 140 mm. Fifty had hypertension in two or more pregnancies. Twenty-seven of these were seen in follow-up. Twenty-one, or 78%, had pressures above 140 mm. This study indicates that the woman who exhibits hypertension in one pregnancy is likely to have a similar or more marked disturbance in subsequent pregnancies and that as pregnancies are repeated, she tends to maintain a hypertension in the non-pregnant state as well.

There is, then, a group of the so-called late toxemias of pregnancy characterized primarily by manifestations typical of cardiovascular disease with hypertension. In the follow-up of cases of this kind essential hypertension is found to reveal itself in the majority within a few months or years following the pregnancy marked by the disturbance in question. If pregnancy is repeated, recurrence is found in at least 85% of all cases and in 100% of severe cases.

Conversely, examples of latent or declared essential hypertension when pregnancy takes place reveal a very definite kind of disturbance which is often but an exaggeration of the ordinary features of the cardiovascular disease. In the more serious cases, the picture of an acute toxemia which may resemble or be identical with pre-eclampsia or with eclampsia is engrafted and forms the climax of the difficulty. However the obstetric surgeon may classify cases of this type, to the internist such are examples of cardiovascular disease rather than of nephritis. Albuminuria and renal insufficiency are not features of this group. The ophthalmoscopic picture is that of arteriosclerosis and the cardiovascular changes suggest hyperpiesis rather than renal failure.

In the clinical end results of eclampsia, pre-eclampsia and of the variously classified sub-acute or hypertensive types of toxemia of late pregnancy there is a certain unity. The stigmata of hyperpiesis form the most frequent common factor. Pathologically eclampsia and pre-eclampsia give similar late alterations in the vascular mechanism of the kidney. These changes are in many respects similar to the arteriosclerotic lesions of hypertensive cardiovascular disease. These lesions are different pathologically and in many important features in their clinical accompaniments from those affecting primarily the secretory mechanism of

the kidney and to which the term nephritis should be confined.

The writer has heretofore used the term hypertensive or cardiovascular to denote the sub-acute, non-convulsive toxemia of pregnancy thus emphasizing the apparent association of this disturbance with hypertensive cardiovascular disease. Further study leads to the tentative opinion that, leaving nephritis (considered in this connection as damage to the secreting portion of the kidney) out of consideration as a separate entity, there is but one other variety of late toxemia—that the acute convulsive toxemia and the sub-acute non-convulsive toxemia are but varieties of a disturbance fundamentally vascular rather than parenchymatous. Such a conclusion would therefore lead one to classify the late toxemias as 1. Nephritic; 2. Pre-eclamptic and Eclamptic. This lists as pre-eclamptic a much larger number than has heretofore been the custom. It makes essential a differentiation between hyperpiesis and nephritis; between disease affecting primarily the vascular system at large and incidentally the kidney and that affecting primarily the secreting mechanism of the kidney. The loose use of the term nephritis in connection with the toxemias of pregnancy should no longer be countenanced. Further, if a common denominator of hypertensive cardiovascular disease in eclampsia and pre-eclampsia can be shown, search for etiology of these baffling disorders is simplified.

*General Discussion.* What is the significance and nature of the disturbance which we call toxemia of pregnancy? Dismissing the early toxemias characterized by pernicious vomiting and confining consideration to the later toxemias, we observe that the disturbances are marked chiefly by involvement of the central nervous system, cardiovascular system, kidneys and liver. There is one quite distinct group marked by renal insufficiency. This group has a latent or developed nephritis which can usually be differentiated from the other types of late toxemia and differs from them in its management and somewhat in its immediate and remote results for mother and child. The remaining types of late toxemia, namely the eclamptic and those marked by essential hypertension seem to fall into one great group, the etiology of which is bound up with that of hypertensive cardiovascular disease. This tentative classification seems justified by

certain pathological-anatomical observations, by extensive follow-up studies and by the observation of patients that present toxemias in repeated pregnancies. Such patients would seem to have a fundamental cardiovascular instability which does not adapt itself to the requirements of pregnancy, just as individuals with this disorder fail to adapt themselves securely and comfortably to other phases of life.

The adjustment of the maternal organism to pregnancy is infinitely complex. All the organs and tissues, even the bones and skin, are changed. What this implies in the inner economy of the body can scarcely be imagined. It is logical that the primipara makes the necessary series of adjustments less readily than the multipara who has once mobilized her forces for this function. The primipara is for this reason more subject to pernicious vomiting, to eclampsia and the psychoses than is the multipara. The mechanism of adjustment to pregnancy once mobilized often seems to functionate better in subsequent pregnancies than in the first. However, if there is a fundamental weakness of importance or if organic changes have taken place, later pregnancies are likely to be marked by increasing disturbance. The adjustment of internal relations to external environment, complex enough at best, is greatly complicated by the requirements of the fetus. Under such a burden the organism is likely to break down in its most vulnerable part. If nephritis is present, the kidneys cannot compensate for the added demand of pregnancy. If the cardiovascular system is unstable, with a foundation of hypertensive cardiovascular disease, this disorder will first become manifest or if manifest will become aggravated during pregnancy. Inadequacies in the nervous system, possibly in liver, pancreas, thyroid or other organs of importance may likewise reveal themselves.

Eclampsia is rare indeed in the modern, well organized obstetric clinic. While the pre-eclamptic or hypertensive type is common, the cases seem less severe than in the days before antenatal care was popularized. Care of diet, weight, focal infections, fatigue and other sources of physical or mental maladjustment can and do greatly reduce the incidence and severity of the late toxemias. This is a strong argument

against a unitary cause of these conditions, such as a specific toxin.

Viewed largely, then, toxemias of pregnancy are probably not toxemias. Rather are they evidences of underlying tendencies to disease. In some, probably the largest group, these tendencies prevent that co-ordination of function which makes for a normal pregnancy. Cannon has aptly called such co-ordination of function "homeostasis." As knowledge of physiology increases we shall probably find explanation of many disease processes in such a principle. It is increasingly probable that organic changes in tissues are not the disease or the cause of disease in many cases, rather are they the result of primary alterations in function. Certainly hypertensive-cardiovascular disease appears to be in this class. What is it that determines that the heart shall mobilize just enough blood and not too much; that lungs, endocrine glands, intestinal mucosa, liver, pancreas shall do so much and no more? What preserves this integrating inter-organ balance which is health? This function is of the involuntary nervous system, of which the sympathetic is most important. As medical philosophy adapts itself to the functional as well as to the pathological-anatomical point of view of the origin of disease, emphasizing as it does that equilibrium of function which is of such importance in adjusting relations with environment, I predict an increasing appreciation of the conception of "homeostasis." The solution of many medical problems, especially that of cardiovascular disease, awaits further addition to our knowledge of physiology, especially that of the involuntary nervous system and its control of vegetative functions. Bound up with that of cardiovascular disease, I believe we shall find the secret of the origin and nature of the major part of the so-called toxemias of pregnancy.

#### CONCLUSIONS

1. The toxemias of pregnancy may be separated into the early and the late types. The former are characterized chiefly by pernicious vomiting, rarely by acute atrophy of the liver. They are probably without serious after-effects.
2. The late toxemias are marked by albuminuria, hypertension, nervous and mental changes, edema, bilirubinemia, anemia, epigastric pain and tenderness, convulsions; these



symptoms appearing singly or in any combination. These may have serious after-effects.

3. Those in which the kidney is primarily at fault form a definite group. These are examples of a primary defect in the secreting mechanism of the kidney and may fall under the headings: nephrosis, parenchymatous nephritis, or glomerulo-nephritis. Clinically they are marked by a prolonged albuminuria of high degree with or without retention of nitrogen in the circulating blood. Hypertension is a secondary feature. Practically, these are examples of nephritis complicated by pregnancy.

4. The larger group of late toxemias includes the eclampsias, the pre-eclampsias and milder types which have been variously classified. These do not have nitrogen retention, and albuminuria is not a prolonged feature but occurs late and suddenly. Pathologically and clinically in follow-up studies there is much to suggest that in their immediate and remote effects these are examples of vascular disease primarily and have much in common with the ordinary hypertensive cardiovascular disease or hyperpiesia.

5. The loose use of the term nephritis in as-

sociation with the late toxemias of pregnancy should no longer be countenanced.

6. Recognition that the problem of these toxemias is bound up with that of cardiovascular disease with hypertension seems a helpful step in search for etiology. Cannon's conception of "homeostatis" may be an explanation of the mechanism if not of the cause of the late toxemias.

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## BIBLIOGRAPHY

1. Bell, E. T.: Renal Lesions in the Toxemias of Pregnancy. *Am. J. Pathology*, 8:1, 1932.
2. Simonds, J. P.: The Pathological Bases Symptoms in Nephritis. *J. A. M. A.*, 98:803, 1932.
3. Gibberd, A. F.: Contribution to Study of Maternal Death-rate. *Lancet*, 2:535, 1929.
4. Clow, F. E.: After Effects of Toxemia of Pregnancy. *New England J. Med.*, 198:351, 1928.
5. Margeson, R. D.: Toxemia in Pregnancy. *New England J. Med.*, 198:735, 1928.
6. Corwin, J., and Herrick, W. W.: Toxemias of Pregnancy in Relation to Chronic Cardiovascular and Renal Disease. *Am. J. Obstetrics and Gynecology*, 14:783, 1927.
7. Peckham, C. H.: Chronic Nephritis Following Apparent Toxemia of Pregnancy. *Am. J. of Obstetrics and Gynecology*, 23:386, 1932.
8. Hinselmann, Hans: *Die Eklampsie*, Bonn, 1924, pages 401-425.
9. Volhard, F.: *Handbuch der speziellen pathologischen Anatomie und Histologie*, Springer, Berlin, 6:254, 1930.
10. Fahr, T.: *Über die Nierenveränderungen bei der*

TABLE I—ECLAMPSIA

Results of Follow-up Studies

Author	Date of Contributions	No. of Cases	Time of Follow-up	Normal	Abnormal
Koblank .....	1894	77		59.7%	15.4% catarrh of urinary tract 6.5% nephritis 4.0% hypertension
Meyer-Wirz .....	1904	35	at post mortem		3 chronic indurated kidney
Youngemeister .....	1913	..			7.0% chronic nephritis
Boish .....	1913	110		40.0%	11 permanent invalids
Wolff and Yade.....	1914	23			2 chronic nephritis
Sachs .....	1918	87		80	2 chronic nephritis
Hussy .....	1921	..			Saw no instance of Eclampsia developing into chronic nephritis
Breuning .....	1924	88			88% on dismissal from hospital
Heynemann .....	1924	45			Albuminuria and hypertension frequent Thinks hypertension due to disease of arterioles or capillaries resulting from eclampsia.
Fahr .....	1924	..			From pathological studies believes it possible for the eclamptic kidney to give rise to renal disease
Yondeck and Jacobowitz.	1924	38	1 to 7 years		Renal disturbances in a few instances
Doderlein .....	1925	26	8 mos.-15 years	16	10 with disturbance of renal function
Buud .....	1925	39			4 chronic nephritis
Post-Stieglitz .....	1926	74	13 months		23% chronic nephritis
Nevermann .....	1927	60	1 to 23 years	27	8 hypertension 3 albumin and casts
Corwin and Herrick....	1927	41	6 mos.-6 years		32% hypertension; 34% albuminuria; 10% edema; 61% retinal anomalies
Peckham .....	1929	..	1 year or more		22% nephritis
Kobes .....	1930	32	3-85 months		3 albuminuria

Eklampsie und ihre Abgrenzung gegen andere Formen des Morbus Brightii. *Zentralbl. f. Gynak.*, 52:474, 1928.

Handbuch der speziellen pathologischen Anatomie und Histologie, Springer, Berlin, 6:254, 1930.

11. Cohnstein: *Ibid*; 6-1:254, 1930.

*Ibid*; 6-1:256, 1930.

12. Cannon, Walter B.: Control of Homeostasis by Sympathetic System. *Tr. A. Am. Physicians*, 44:41, 1929.

Organization for Physiological Homeostasis *Physiological Rev.*, 9:399, 1929.

13. Weiner-Gerlach: Handbuch der speziellen pathologischen Anatomie und Histologie, Springer, Berlin, 5:111, 1930.

14. Draper, George: Human Constitution: Physical Types in Relation to Toxemias of Pregnancy. *Am. J. Med. Sci.*, 70:645, 1925.

15. Berman, S.: Observations in Toxemic Clinic, Boston Lying-In Hospital, 1923-30, *New Eng. J. Med.*, 203:361, 1930.

## THE LAITY IN MEDICINE\*

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The term "medicine" as used in the title of this paper expresses that term as related to the art and practice of medicine by the regular medical profession. The term "laity" is used to express that part of the public not in the medical profession.

In considering this topic, the first point of interest is the question: "Is the laity in medicine?" The most casual scanning of the daily newspapers, lay magazines, billboards and radio broadcasting answers very clearly that the laity is in medicine in a most thorough fashion.

This interest of the laity in medicine is not only confined to the personal health of the individual, but many misguided although perhaps well-meaning laymen, either as individuals or groups, set out to regulate the practice of medicine for the regular practitioners. These groups take it on themselves to establish health institutes (not for profit), clinics, infant and maternity welfare units, diagnostic services, endowed hospitals or welfare foundations. Up to the present time the only branch of medical practice which has not come in for an uplift by some lay group is the post mortem, and the probable reason for this apparent neglect is that as yet it has not been considered.

The probable reason why business men, philanthropists and the laity in general have attempted to do so much regulation of medical practice is due to the fact that physicians have been so busy in their studies, researches and efforts to advance science in general that they have given little attention to their economic pro-

tection. As has been very aptly expressed, "medical men are in the world but not of the world." In other words, while they breathe, move about and occasionally act, they have, as a body, held themselves aloof from the ordinary and common events of the times.

This aloofness has been so marked that laymen not only regulate medical practice but likewise the therapeutic use of certain medicines. In this regulation lay groups have been aided and abetted by some of the self-constituted leaders of the medical profession, as is common knowledge to all of us.

The practice of medicine is so individual and this individualism is so highly developed that the number of physicians in the various county, state and national organizations has meant nothing because the latent strength of this great number has never been exerted in a common cause. One of the outstanding examples of what may be accomplished by the submerging of individualism and the unity for action in a common cause has been the united support given the Legislative Committee of the Illinois State Medical Society by the members of that splendid organization. This example should be an object lesson to every state organization and to the American Medical Association.

The American vocabulary, through constant use and reference, has added the word "racket" to the long list of words that become official through usage. It is a word of deep expression when we consider the many uses some of the laity and some lay organizations make of the medical profession and medicine in general.

The cheapest class of lay grafters rent an office, install a battery of telephones and hire some high pressure salesmen. These salesmen open the classified telephone directory on the page headed "physicians" and start to work. A new welfare society has sprung into being and physicians and (when the classified list of physicians is exhausted) laymen are asked to contribute to a fund to provide milk for suffering infants. Recently one of these groups was indicted, tried, convicted and sentenced after they had been in operation for some time.

The next in a slightly higher stage of mental evolution start a collection agency. Salesmen visit the physicians and give a talk on the collection of bad debts, and all of us know that there are plenty of bad debts. The idea is that

\*Read before the Secretaries' Conference at Annual Meeting, Illinois State Medical Society, May 17, 1932.



unless collections are made it is to cost nothing. All that is necessary is to list the debts on a sheet and in order that it may be an authentic list, the name is to be signed. Unfortunately for the signers there is a contract at the top with much fine print. Nothing is heard from the collector for some time, maybe to the extent of a year's lapse. At some reckoning day the physician finds that he owes this agency a sum of money.

First there is a "filing charge" of perhaps fifty cents a name and further in the contract it is stated that enough money must be collected to guarantee the collection agency a set sum with a minimum of three dollars a month. The unfortunate physician who signs this contract finds that he owes a minimum of thirty-six dollars and a filing charge depending on the number of accounts he has given. He may object enthusiastically to the payment and then he finds himself sued. If he appears to defend the suit, a continuance is taken, and this becomes a habit until the day he does not appear and then a judgment is entered and in addition to the amount of the contract costs are added.

From that stage up progression is made until the higher types are reached. Their methods, to borrow from the rhetoric of the classics, are firmly, gently, but never rudely. They all have the same ultimate object in view, the annexion of some part of medical practice with the physicians, always giving of their time, experience and talents. Remembering that it is more blessed to give than to receive, physicians as a class will merit a high reward in the world to come for the lack of material reward they receive in their present existence.

Big business "muscles in" by figuring to use some of their surplus funds in establishing an endowed institution where for little or nothing the layman, regardless of his financial ability, may be rescued from his best friend, his family physician and receive the benefit of superior skill and superhuman knowledge.

Many a brain storm in the organization of some uplift has fallen by the wayside in the last two years because "big business" has been so busy trying to figure a way of keeping above water it has had no time to interfere with the medical profession. So while the present economic condition may not be of the best for any

of us, at least it has been a successful barrier in keeping business men in their own affairs.

It would appear that many of the conditions which apparently have got out of hand occur because we of the medical profession have not taken the place and interest we should have in the ordinary events of life. In any project which has for its ultimate aim the health of the average citizen we should be the guiding hand. Many times this guidance from us with the angle of the welfare of all at heart has saved some serious situations.

The solving of the situation appears to me to be the entrance of organized medicine, *in an official membership*, into the various business organizations—Lions Clubs, Kiwanis Clubs and similar organizations. Individual members may belong to these organizations, but their voice is only as individual members. If organized medicine had an official membership, then they would speak not only as individual medical men but as a unit.

Various mottoes appear on the desks and walls of business men and physicians, but the one that would count if followed literally would be the saying of Theodore Roosevelt that "every professional man owes at least a part of his time to the advancement of the profession to which he belongs."

#### DISCUSSION

Dr. G. Henry Mundt, Chicago: One cannot listen to Dr. Foley's paper but be impressed with its importance. The difficulty is that the men and women who actually need to hear this paper are not here. That is the difficult thing talking on any topic on medical economics, you cannot get the people who should listen to this type of thing. I made a note or two because I am interested. I want to call your attention to the fact that in as hide-bound an organization as the American Medical Association the Section on Medicine had a joint meeting with the Section on Public Health in which there was a rather enlightening discussion on medical economics during the meeting last week. Now that is pretty good. What I say I say in constructive criticism, not to criticize anyone. Some of us talked to various men in the American Medical Association, three, five, six, seven years ago on the importance of the study of the problems of the type outlined by Dr. Foley. They are real problems and they are problems for the medical profession, but particularly they are problems for the general public because the thing that is best for the general public is, in the final analysis, the best for any honest group in the general public. We talked to various men in the American Medical Association and I was told repeatedly that the Constitution of the American Medical Association made it impossible to consider the prob-

lems of medical economics. Still without any change in the Constitution, finally there was sufficient pressure brought to bear that now we have a Bureau on Medical Economics that is investigating and doing something of real value.

Another thing along the line of Dr. Foley's talk. The Judicial Council of the American Medical Association at the meeting in New Orleans brought in a report which should have been brought in five years ago by the Judicial Council. The purport of that report is that institutions that are practicing medicine, such as universities with pay patients, should restrict definitely the number of patients used to those needed for teaching and research. That thing should have been outlined by the Judicial Council five years ago. The reason that Illinois has had the leadership for many years in medicine is because the rest of the country has been far behind them. I think that such things as Dr. Foley talked about and such men as Dr. Foley are to be commended to medicine, not so much in Illinois but in the country surrounding this state. I could tell Dr. Foley a lot of states in which he should read this paper.

Dr. F. O. Fredrickson, Chicago: The gist of the paper is that the medical profession cooperate and work with lay organizations in the interest of the medical profession. I just wish to cite one instance in which this has been done and is being done more and more and in which Dr. Foley is particularly active. That is in regard to the cooperation between the medical profession and the American Legion and other veteran organizations. Two years ago we established a so-called medical commission in the American Legion in the Department of Illinois. It was suggested at that time that a Committee be formed in the Illinois Medical Society to which the Council and House of Delegates agreed, and also in the Chicago Medical Society Council, in which Dr. Foley has been particularly active. I would say this much, that two years ago the suggestion of cooperation between the medical profession and the American Legion was received rather coolly at first. The officers of the Rehabilitation Committee had seen fit to not cooperate with any outside organization. However, pushing this matter a little further with Dr. Foley's committee, there were organized committees in all the various branches of the Chicago Medical Society and also the various component societies of the Illinois State Medical Society, that is the county societies. At last it started to bear the fruit of our efforts. During the meeting of the Council on Medical Education and Hospitals of the American Medical Association one session was devoted entirely to problems relative to the medical profession and the ex-service man in which Dr. Shoulders was particularly active. After the meeting was over I met Mr. Hayes and two or three others who were there to speak. They said, "We see you fellows got your own way after all." The result is that Dr. Foley is going to have a luncheon meeting this noon and Mr. Hayes and Dr. Shoulders are going to speak, and I would suggest that everyone, whether veteran or not, attend this luncheon because I think it is a very valuable factor.

## THE PRACTICE OF MEDICINE VERSUS THE PROFESSION OF MEDICINE\*

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Medicine, as a vocation, invites our serious consideration of its various phases which are closely related to, or affected by, agencies either within or without the recognized authority of medical activities, and especially to such of these as are seriously placing a handicap upon the future progress of medicine and the welfare of the medical profession.

In discussing this subject it becomes necessary to divide medicine into the two distinct phases; namely, "The Practice of Medicine" and "The Profession of Medicine."

The practice of medicine is a phase which relates to an individual, or a group of individuals who, through a medium of medical education, sets out to heal the sick and thereby hopes to gain a pecuniary reward sufficiently large to supply the necessities of life.

Here the physician deals with the layman as a patient and his concern rests chiefly with the matter of diagnosis and treatment. However, he does harbor a secondary consideration and that being his reward. Since diagnosis and treatment of diseases are instruments of science, the very act of dispensing these services at once becomes one of scientific aspect, but, due to the fact that he expects and usually receives a reward for his services, such act has an economic value as well. So it is plain that the practice of medicine is an economic as well as a scientific venture.

The practice of medicine as an economic venture involves the physician alone as an individual and, as such, he is concerned with his profession only as a means of furthering his own interests to the point of reaping an ample reward. Consequently, he becomes involved in an atmosphere of individualism which remotely removes him from intimate contact with others of his profession and centers in him an illusion of independence.

The independence which seems to exist in the private practice of medicine is prone, in many instances, to concentrate the individual's mind on his own small world and cause him to forget

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the relationship which exists between this phase and social medicine.

Scientific medicine seems to have engulfed us to such an extent as to promote the idea that with this armament alone the practice of medicine may be carried on to the heights of exclusion of other fundamental agencies, which in the last decade have become of paramount importance, not alone to medicine but to other professions and trades as well.

In the private practice of medicine the individual becomes imbued with the spirit of independence to the extent that he disregards the precepts of economics and harbors the assumption that his small sphere of medicine is immune to the pitfalls of stabilization which are so often encountered in the world of commerce. He places his confidence in an ever-changing public who react most sympathetically to the moods of the changing times, and stakes his existence upon preconceived notions that fickle public opinion will come to his rescue when the emergency arises.

In medicine, the practice of this science stands out prominently as of utmost importance and, according to the tenets of our teaching forces a recognition of it as such, but in visualizing this subject as a whole, we are brought to a realization that an inter-relation exists between this and other phases of medicine which relegates it to a position of dependence and places upon it a price which must be paid by both social and economic medicine.

The individual who centers his interests alone in the practice of medicine is shifting the responsibility to others and is ignoring the demands which an economic world is making upon his profession. That his ambitions are so self-centered that the realization of medical relief is a necessity is hardly conceivable.

The practice of medicine, accruing to the individual as it does, is apt to hold his attention upon this phase and to harbor his undivided interest because of the immediate monetary reward which it produces, but it should be recognized that immediate returns are not always lasting and that by giving attention to the other phases of medicine as well, he is building a reward which is not only far-reaching in its scope but is far more substantial and more remunerative over a long period of time.

Our medical schools are largely to blame for

the physician's centralized interest in the practice of medicine because in their teaching they deal only with the acquisition of medical knowledge and the dispensation of medical service. They place in the physician's grasp only such material as is useful to his patient, and leaves him unguarded in his struggle for self-maintenance. He is well equipped for carrying on the practice of scientific medicine, but he is left defenseless against those hazards which threaten the safety of medical practice. Medical schools certainly are neglecting their duty and are falling far short of the purpose of their existence when they train students for a service which benefits only the served and leaves the server without justifiable reward. Any training which but partially qualifies the student for meeting the full responsibility of his vocation is shortsighted and without justification. Medicine cannot hope to meet its standards of qualification until medical schools effect their reorganization to include both economic and social medicine.

The practice of medicine formerly was a phase which was independent of, and but little influenced by other phases of medicine, but through our changed social conditions it has, in its practical application, become secondary to, and more or less dependent upon, those other phases with which the public is becoming familiar and by which they hope to make it subservient to a program of lay medicine. If physicians will recognize the importance of giving their attention to the cause of medical unrest, and by so doing divert public attention away from the social and back to the scientific, the practice of medicine will again attain its proper place in the public mind and acquire the position of dominance it once held.

The medical profession is best thought of as being a group of individuals who practice medicine but who are, more or less, intimately related to one another because of their individual, personal interest in one common branch of science. For the simple reason that their common interests are focused on one endeavor, that being to heal the sick and prevent illness, it follows that there should exist a bond of sympathetic co-operation in promoting a program which reacts to the welfare of the profession. Inasmuch as individual efforts have proven slow and ineffective and have been replaced by collective bargaining, organization has been substi-

tuted and has proven its worth in co-ordinating and bringing to a focus such medical opinions as are conducive to medical progress.

In discussing the medical profession I, therefore, refer not to the individuals who compose this body but to the collective aggregate, as represented by organized medicine.

In accrediting scientific medicine the responsibility for medical organization, we have placed proper credit where credit belongs, but we wish to declaim the fact that scientific medicine is at present the predominating factor which holds in its hand the fate of the medical profession.

Organized medicine today is not called upon to defend itself in a scientific way because medicine as a science has, beyond all doubt, proven itself to all but the severest of critics. It has cleansed the civilized world of practically all of its plagues; it has healed the physical wounds of industry; it has mended the broken bones of accident; it has rehabilitated the impairments of war; it has ascepticized the infections of surgery; it has diagnosed and cured the cause of fever; it has prolonged the span of life; it has corrected the defects of childhood; it has added to the safety of maternal confinement; it has strengthened the race; it has lessened pain and suffering; and it has taught much of prevention. Can anyone conscientiously assert that scientific medicine has failed civilization?

In meeting the demands of science, medical organization has been accomplished to the extent that its function has become wholly adequate, but in so doing it has become impressive to the physician that he has failed in proper recognition of the problems of social medicine, and as a consequence the profession is now suffering from the folly of its own neglect.

The medical profession, as an organization, is still playing, playing in a leisurely way the game of "blind man's bluff," a game in which the physician, as the blind man, is seeking without light the social culprit who through legislation, bureaucracy and paternalism hopes, in a medical way, to function as a free lance.

The medical profession, as individuals, are looking for protection, and a solution of their problems, to the state society, and let me express my belief that the state societies are doing all within their power to stave off the impending catastrophe, but it is my opinion that the state medical societies alone will never solve the

problems of the profession. Our state society is nothing more than a composite group of county organizations and, as such, can accomplish no more than accrues through the efforts of each of these county groups. It is plainly the duty of the state society to direct the activities of these various groups, but the organization of the profession must maintain locally; the efforts toward solution must apply locally; interest must manifest itself locally; and results must obtain locally.

I fear that the state society, in directing its activities, has failed to include in its regime proper educational facilities for promulgating better organization among its local groups. In its program of education it has concentrated on the layman to the almost total neglect of its own members, and as a result the majority of the profession are unaware as to what it is all about. The medical situation will never be completely in control until, and unless, the membership of the local organization is enlightened to the extent of sympathetic co-operation. The most serious needs of the profession at the present time are: better organization; more sincere interest in the problems of the profession; increased activity in professional affairs; a better understanding of the aims of the state society; a more thorough knowledge of the duties and responsibilities of the local organization; and enlightenment along the lines of the obligations of membership.

The medical profession is seriously handicapped in its bid for freedom and in its fight for progress by the competition of medical practice. Medical practice, in acclaiming the attention of the physician, is detracting the interest of the individual from the problems of the profession. After all, medical practice is secondary to, and dependent upon, the progress of the medical profession. Solution of the problems of the profession is the means to an end. Let the profession fail and medical practice fails also. Medical practice does not stand alone and for that reason cannot endure unmolested without the protection of the medical profession.

The practice of medicine in the future is going to be governed to a greater degree by the dictates of the medical profession, inasmuch as the practice of medicine has an economic phase and economics are subservient to, and seriously affected by, social conditions. Economic medicine is



analogous to the practice of medicine, inasmuch as it is the end result of medical endeavor accruing to the physician and its stability will be affected according to the ever-fluctuating status of economic and social conditions in general. The soundness of economic conditions being dependent upon, and affected by, social conditions, it becomes evident that the practice of medicine is influenced not so much by the individual as by groups of individuals. Social medicine being a problem for solution by the group, and not by the individual, it follows that the medical profession is charged with the responsibility of solving these problems. The problems of medicine being, today, in the aggregate problems for the profession and of only relative importance to the practice of medicine, must necessarily be handled by the profession.

Medical organization as it stands cannot, nor will it be able to, command proper public respect until it clothes itself with sufficient authority to demand the public's confidence in matters both social and economic. If medicine is to have the authority to which it is justly entitled it must, necessarily, create a wider, more sound and sympathetic interest in problems of the profession, within its own membership. Correct principles of medical freedom must be taught in every local organization, and each individual must swear anew his allegiance to the medical profession.

The medical profession has impressed the public too much with what it knows about the scientific, rather than what it has done about economic medicine.

The public is interested, not so much in the science of medicine as in the practical application of this science in an economic way. They are evaluating the profession from the angle of dollars and cents and charging us with neglect of the public welfare. They have been quick to recognize our failure in coping with problems both social and economic and, as a result, have taken advantage of the opportunity to set up lay standards of medical control. We, because of lack of authority and improper methods of attack, have sat placidly by and watched the sovereignty of medicine dethroned, and as a result we now bow to lay directors.

The practice of medicine has as its goal two objectives, namely: 1. to render medical assistance to the individual in the way of prevention

and disease. 2. to reward the physician financially. The Profession of Medicine has as its motives: 1. medical protection for the public, and 2. the protection of its own welfare. The scope of private practice is individual, narrow, short-sighted and greedy. The designs of the profession are broad, far reaching, liberal and affect the group.

The profession is the motive power which propels private practice; it is the guardian which protects private practice; it is the stimulus which animates private practice; it is the light which guides private practice; it is the teacher which instructs private practice; and it is the support upon which the future of private practice leans.

Medical practice is merely a child of the medical profession and without proper organization becomes an orphan, subject to the direction of the state. The medical profession has always had a horror of public opinion, due to the fact that public sentiment has been influenced against it by those who either desire to subsidize medical practice, or by certain groups who hope to displace it by qualifying under lower standards.

The medical profession has much to offer the public, along the lines of social and economic medicine, just as soon as the public mind is in a receptive mood to receive it, but the public mind will not be open to conviction until organized medicine molds public opinion to the extent of a more sympathetic understanding of medical problems, as interpreted by the physician.

The public's solution of medicine's economic problems is based upon interpretations arrived at and conclusions drawn through the medium of the lay mind, and consequently is a solution of low costs rather than of high quality service. Medical problems can be solved only by medically trained minds, and by them not alone through scientific channels but by a practical application of economic concepts drawn from social conditions as they exist, from time to time. This brings us face to face with the fact that medical problems are constantly changing, and new ones arising, and the degree to which this is true is determined by the extent and rapidity of economic changes as they become affected by altered social relations.

Any solution of medicine's problems based upon low cost and a declining standard of service is not one which will readily be accepted

by the medical profession for the reason that medicine's first and foremost duty to the public welfare is highly qualified service, and such service is not commensurate with low cost.

The lay conception of a solution for medicine's problems seems always to be one which is applicable only to the group, or to a great number of individuals, and this is not in accord with the profession's opinion that quality service can be rendered alone to the individual. Definite proof has established the fact that quality service cannot be applied in quantitative form, and when it is so applied thoroughness is sacrificed to the extent of inefficiency. Medical practice, in its thorough application, is an endeavor whose scope includes only the individual and work done in this manner can serve only a limited few, and for this reason the cost of such service seems, to the public, to come high. The public has yet to learn that mass production is applicable only in a commercial way and that science and art, through their finer appreciation of nature's laws, are unable to adjust their modes of function to the dictates of a revolutionized machine age. The surest and quickest way to degrade the practice of medicine is to force the medical profession, by compulsion, to accept the principles of social medicine, as outlined and advocated by lay groups. If medicine is to retain its present high standards, it must be allowed to function without the interference of lay politics, lay policies of economics or lay socialistic ideas.

Organized medicine has many members but few martyrs. Its members are adhering to the practice of medicine through the compulsion of an economic demand, but only a few have as yet been imbued with a spirit of patriotism which is calling them to the support of a profession whose foundations are being shaken by the blast of revolutionary advocacy.

The practice of medicine is in the future faced with the responsibility of relinquishing its seat of primary importance, in the physician's mind, to a competitor, whose influence is much stronger and far more conducive to the physician's welfare, and that being the profession of medicine.

The layman is not interested in the practice of medicine, but he is vitally concerned with the public welfare. The practice of medicine, being in its very make-up of individual application, has never been accredited with contributing anything of acknowledged value to the public in an

economic, social or politic way. Only through organized effort is it possible for medicine to impress the public, and bring to their consciousness the fact that it has accepted the challenge, is aware of their needs, and is willing and capable of meeting their demands in fulfilling the necessary requirements of an age of changed social conditions.

Every practitioner of medicine must be awakened to the realization that upon him rests the burden of shouldering the responsibility of organized medicine; that his foremost duty lies, not in the practice of medicine but in the problems of medicine; that his thoughts must be directed, not on private but, on public medicine; that his activities must be directed, not toward the individual alone but must include the public; and, that if he cannot lead he must, at least, follow.

Preventive medicine is advocated, and justly so, as being not only a wise venture from an economic standpoint but as a means of escaping the incapacity of illness and the sorrow of premature death. The public is, as yet, unaware of the benefits of preventive medicine and will remain so as long as the private practice of medicine alone makes this its problem, because, while prevention is an individual problem as well as a public one, it remains for the organized profession to create a consciousness of its merits.

Social medicine, as an endeavor, when guided by the medical profession becomes orthodox in nature and as such may have some merit, but when directed by the lay mind is a misconceived notion of public relief, and becomes communistic in character. The cause of such innovations arise through a lack of appreciation, on the part of the medical profession, to sense the trend of the lay mind on matters of medical importance and the results of such theories become apparent to the public only when the profession is awake to, and warns off, the calamity of such procedures. It is an axiom that a blind man is quite as bold in the dark as in the light, and this applies in a marked sense to the layman when confronted with medical problems.

Public Health is a relief measure which was necessitated by an apparent antipathy on the part of practitioners of medicine, but since the medical profession has begun to heed the numerous but insidious encroachments upon the field of private practice, medical organization is be-



ginning to sense a violated obligation and wonders if the public health must remain as a social aspect and be fostered by the community, the state, and the nation as a dole to the citizens of a wealthy republic. Public health always was, is now, and ever shall be a problem with which the medical profession must cope, and while it may never be an activity wholly carried on by organized medicine, it can be so closely allied with it that the function of public health will resolve itself into a professional activity and cease its existence as a political subterfuge.

Lay medicine exists today, probably as never before, and is founded upon the excuse that the medical profession, through laxity on its part, has neglected to interest itself sufficiently in the semi-scientific phases of medicine, which are so necessary in promoting educational as well as public relief agencies, incidental to a well balanced medical program. Of course, this is no fault of medical practice because these fields do not belong to the individual, but the burden of the blame rests upon the profession of medicine and has accrued to our discredit through shortsightedness on the part of medical organization.

Cultism has grown by leaps and bounds, not through incompetency on the part of medical practitioners but because of changed social conditions; a keener sense of appreciation of public weakness to accept ideas and methods out of harmony with the orthodox; and a program of publicity which is not only unscientific but is, in its very nature, brazen. To compete with the methods of cults, private medicine is helpless, but to say that the profession of medicine, through organization, cannot successfully combat such erroneous propaganda is not true.

Political medicine is probably the most feared enemy of medical practice, and its most deadly weapon is legislation. This is the club most often used in beating into submission the private practitioner, and as well the medical profession, because here we have lay ideas, molded into instruments of law by lay minds, and after adoption become the property of interpretation by laymen. In dealing with political medicine we are more or less helpless, inasmuch as our strongest persuasive arguments may be of no avail, but the medical profession must not and will not desert private practice in this field of

encroachment, for it is through this channel of entrance that we may expect all the various forms of bureaucracy, paternalism, and state medicine and with them a lowering of medical efficiency, and a ruin of medical practice.

Publicity is admittedly not a proper field for private practice, but as a function of the medical profession promises to bring into closer harmony lay and medical opinions, a better understanding of professional purposes and a more thorough knowledge of the public needs. Publicity is an agent that can, when properly directed, mold public opinion to a degree that medical opinion will be accepted without question and will accrue not only to the public welfare but to the common good of private practice and to the profession.

Education of the public mind along medical lines is an accomplishment which is truly worth the effort, but it cannot be done to any degree of satisfaction through medical practice. Here again the medical profession must come to the rescue for this undoubtedly must be an endeavor of organization. Unfortunately, at this time, much of the medical instruction is being done by lay workers whose only qualifications are theories gleaned from courses of instruction for welfare workers, people who not only lack practical contact in a medical way but are without sympathetic understanding of even the rudiments of physiologic processes. Public education need not, and best not, be of a scientific nature but should deal principally with the cause and effect of disease. I am afraid that we have already given the public more of scientific medicine than they can assimilate and, in so doing, have created within them a widespread superiority complex with which it is now difficult to cope.

If medical men can for the next few years assume the role of a supportive member of the medical profession, not forgetting altogether private practice; become imbued with a spirit of interest and activity commensurate with the needs of organized medicine, we, as a profession, can and will, by facing our lay problems of social and economic medicine, effect a solution which will not only be gratifying to ourselves but will react in the public mind in such a way and to such extent as to mold public opinion expressibly

in our favor and effect an amiable adjustment of lay behavior toward orthodox medicine.

754-757 Citizens Building.

### DISCUSSION

Dr. Thomas P. Foley, Chicago: There is one phase I would like to speak on. That is the relation of medical organization to legislation. Two years ago in the city of Chicago the Chicago Medical Society with 4,500 names on its roster was divided into senatorial districts. We found that a very effective way of handling legislative matters. It was the greatest representation legislatively that any medical society has had. When Dr. Neal had a problem up, he sent cards to us and we sent notices to the doctors. There are senatorial districts in Cook County where there are 300 or 400 physicians registered. There was one legislator in Chicago who had been antagonistic to the interests of organized medicine. After Dr. Neal sent out post-cards in this district and this man received 450 cards, he went to Dr. Neal and said, "I have 450 post-cards. Like a good many things I receive, I wondered whether they were authentic; I had these checked and found the addresses were 100 per cent. correct. I am calling to tell you that from now on whenever there is anything of interest to the medical profession I am ready to listen."

I think with Dr. Frech that the organization goes back to its smallest component. It is like the Army. It is in the county society where the work must be done. In our last primary a doctor called up and said: "There is a certain man running for the legislature who has always been against organized medicine. I think you fellows should go out to beat him." The reply was: "The Illinois State Medical Society never excommunicated anyone who came to Springfield. If he has no right to be there, the blame is on the voters at home." There is no amount of work that Dr. Neal can do in Springfield if the men at home are not in touch with their legislators. In the last primary one of the prominent legislators who had been here eighteen years was in a hard fight. There was on the mailing list in his district 350 physicians, and naturally 350 physicians with their families make an enormous number of votes. A letter was sent telling the work he had done, and he was renominated. I do not think this work is hopeless. Some people tell me I am very optimistic, but I was coroner's physician for three years and there is no bad news I have not seen. If you sent out 100 post-cards and only ten come back, it is not lost.

In relation to this legislative work, I think if each one would only get acquainted with his representative and senator and get them to recognize the fact that they believe in organized medicine, it will be a big factor and will make things very easy for the Legislative Committee. You know we have gotten away from bringing big lobbies to Springfield. There are many people trying to talk to the legislators and they get tired of it. The best way to get to these individuals is through the local organizations. The legis-

lators know we are not selfish in passing something, but that we have the real interests of the people at heart. When it comes to advice on medical legislation there is no one who can advise better than organized medicine. If in your own county you know your legislators, then the situation is in hand. I think with 7,500 members in the Illinois State Medical Society, if they work as a unit there is nothing in the world they cannot get. If they do not work as a unit, nothing can be accomplished.

Dr. R. K. Packard, Chicago: There are just one or two things that it seems to me we ought to consider in this problem of medical economics. Whether a medical economic problem or a social problem of medicine, first of all we must recognize that there does exist an economic problem. I think there can be no misunderstanding about that if we will just stop to consider for a few minutes that about 75 per cent. of our population come in the classification of the so-called common man or wage earner. The wage earner in this country receives about \$1,500 a year. As a matter of fact, the Metropolitan Life Insurance Company made a survey in 1928 of 30,000 workers in which the average income of those workers was \$1,250; the average family was plus four. It does not take very long to figure out with an income of \$1,250 in 1928 with a family of four to support that there is very little left for that family to pay a doctor's bill. If you figure rent, food, clothing, you have used up your \$1,250 long before you have anything for medical care, for education, for recreation or what not. I think we must first of all make up our minds that we have an economic problem in medicine. The second thing we have to recognize is that this economic problem in medicine is only a part of the whole economic problem we have in the country. We cannot isolate medical economics from the whole economic problem of our country any more than we can isolate the farm problem, railroad problem or the unemployment problem that exists today. It is a problem that must be faced. The medical profession I do not believe has, as near as I can determine, yet been able to outline a program for meeting this situation any more than industry itself up to the present time has been able to make a program to meet this situation of unemployment. Industry faces particularly at this time the huge problem of unemployment. They faced this problem even in times of prosperity. Industry, which was laughing at medicine two or three years ago, saying they would have to take it out of the hands of doctors and put it on mass production, now has its own problems to meet and I do not think it will bother us for the next two or three years. That does not satisfy us. It seems to me that the solution of this problem of medical economics must be through the contact of the medical profession with industry; perhaps there must be some form of insurance that will allow a man competent medical care at approximately about its present cost. In a survey of the Metropolitan Life Insurance Company they found that the average family of four paid \$140 a year for hospital bills, doctors' bills, nurses'



work and medicine. That does not seem an exorbitant price, but the unfortunate thing about that group was that 65 per cent. of this money was spent by 35 per cent. of the people. I think this very obviously is entirely out of order.

Now what can medicine do, or what solution can it have or what contacts can it make? We are talking a lot, talking on what we like, what we would do, but I do not believe we are in position to go to the public and make a statement because we have not yet developed a definite formulative plan as to the solution of this problem ourselves. We have to determine what we want ourselves before we attempt to answer this problem.

Dr. G. Henry Mundt, Chicago: This is a tremendously important thing. I do not underestimate the value of the paper, but I believe in the final analysis the discussion is important.

Dr. Frech talked about teaching in the medical schools. There is no question in the minds of most men that the young physician should be prepared to meet his patient on other than the standpoint of scientific medicine. It is a difficult thing to do. I do not know whether it will ever be worked out. He also spoke of the effort to enlighten the average medical man in this problem, the average rank and file member of the county medical society. We are doing nothing to enlighten them and we never will because medical men are trained as individualists; we are never in the majority, but we will enlighten a few who will carry the burden.

I think Dr. Packard said we must work out some kind of wage insurance. I do not know whether we will in this country. I do not think there is a man in this room who will not agree that 80 or 90 per cent. of illnesses could be handled by the general practitioner, by things carried in the ordinary satchel. There is a kick back there just the same as there is in the periodic health examination. A man goes in to have a periodic health examination; the doctor does his usual physical examination; tells him he is all right. The man walks downstairs or upstairs and dies with some cardiorenalvascular thing. That type of thing is serious. It is a serious kick back on periodic health examination, but it is there unless medicine has the facilities to go beyond the restricted things that can be done with limited armamentarium and with limited expense to the patients.

I do not think this problem is unsolvable. I think if we keep awake we will be all right. I think the county society must be the unit. I do not believe the state organization can tell the counties what they must do. The State Society may suggest, but the county society knows its problem. The American Medical Association is restricted to a great extent because they cannot be in sufficiently close contact with the state and the factors that obtain in the state. As a consequence, we must in the final analysis go back to the county organization; it is the court of last resort.

Dr. Elizabeth R. Miner, Macomb: In Dr. Neal we

have a very great advantage. Whenever there is any bill of importance up, he sends a notice to the secretaries of the county societies. I imagine a good many secretaries forget that notice. If on receipt of such notice, the secretary will get in touch with the family physician of the legislator, something will be accomplished. No one can convince him of the importance of a medical measure like his family physician.

## INTRINSIC CARCINOMA OF THE LARYNX, WITH A CONSIDERATION OF SOME METHODS OF OPERATIVE APPROACH\*

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Although intrinsic carcinoma of the larynx is not an exceedingly rare condition, compared with the appearance of carcinoma in many other parts of the body, it is of rather infrequent occurrence. It is nearly always primary; on rare occasions, however, carcinoma may attack the larynx by direct extension from neighboring organs, such as the base of the tongue, the thyroid gland and, rarest of all, it may be secondary to a new growth elsewhere in the body arriving in the larynx by metastasis. While the appearance of malignancy easily conforms to that of the so-called cancer age, namely, the middle or past middle life, a number of cases have been reported in individuals as young as twenty-one, twenty-five and thereabouts. Carcinoma of the larynx constitutes from 0.6 to 0.8 per cent. of carcinoma of the whole body. In comparison with benign tumors of the larynx, the malignant ones constitute only one-tenth the number. Some authorities give as high as 13 per cent. In a word, of all the tumors in the body, this constitutes only 1 per cent., and of all the tumors in the larynx only about 10 to 13 per cent. are carcinomatous. It is seen much oftener in males than females, but does not spare the latter sex. Local irritation from such factors as chronic laryngitis, syphilis of the larynx and irritation due to excessive smoking may possibly predispose to carcinoma, but the case for this point of view has not been absolutely proven. Of the two, sarcoma and carcinoma, the former is exceedingly rare, and is, as a rule, intrinsic. Carcinoma is

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usually epithelioma, but adenocarcinoma is occasionally seen. According to the site of origin, the clinician distinguishes three varieties:

1. Intrinsic carcinoma—when the growth is limited to the vocal cord, the ventricular bands, the ventricles, the inter-arytenoid space, and the sub-glottic region.

2. Extrinsic carcinoma when the epiglottis, the aryepiglottic folds, the pyriform sinuses and the arytenoid regions are involved.

3. Mixed types when both the above mentioned areas are attacked.

Intrinsic carcinoma frequently grows very slowly. It has been known to remain confined to the interior of the larynx for many years. Its metastasis to neighboring lymph glands may be delayed for a long time and its tendency to recur after complete removal is not very marked.

Extrinsic and mixed types of carcinoma of the larynx metastasize very quickly to neighboring lymph glands. As has been stated, the intrinsic types do so rather slowly, but the reasons for this behavior are not well understood. The interior of the larynx, contrary to some opinions, is well supplied with lymphatics, but these do not anastomose very freely with adjoining lymphatics, and empty into two small glands on each side of the larynx. The rate of growth of intrinsic carcinoma is not accelerated by the normal infection usually present in the mouth and pharynx, as are the extrinsic and mixed types. The cartilage of the larynx acts as a barrier, too, in all likelihood. Inasmuch as most carcinoma of the larynx is intrinsic in type, it is true in a general way that if diagnosed early enough and treated properly, malignant involvement of this structure offers a better prognosis than almost anywhere else in the body. However, it must never be forgotten that carcinoma, even in the interior of the larynx, is a dreaded illness and must be diagnosed as early as possible in order to get favorable results. As to the symptomatology of intrinsic laryngeal carcinoma, the earliest sign is hoarseness. This is usually due to an involvement of the cord itself or of the immediate neighborhood with interference with cord mobility. Stubborn hoarseness, unyielding to time or treatment past the ages of thirty or forty, is a complaint which deserves the most earnest investigation. The hoarseness may be due to a growth on the surface of the cord, or one infiltrating the cord.

In the latter case the hoarseness may be out of proportion to the apparent amount of involvement. A growth on the false cord or one protruding from the laryngeal ventricle may be responsible for a damper-like action on the true cord. Pain, especially in the ear, difficulty in breathing and swallowing, cough, salivation, and fetor are late symptoms and must not be relied upon in making a diagnosis. In all instances where for any reason new growth of the interior of the larynx is suspected, a careful laryngoscopic examination is absolutely essential. In the event of an early lesion and where there is doubt, a patient may be kept under observation for weeks, and even months. Intrinsic carcinoma may present the following forms: it may project as a smooth or warty growth; appear as an ulcer superficial and limited; as a tumor infiltrating the cord, or as a unilateral congestion. The first type is usually seen in the middle or anterior third of the vocal cord. The two extremities are seldom involved until late; the growth may appear white and cauliflower-like; sometimes the color is distinctly grey and at other times a dull red. There may be some swelling of the cord in that part apparently beyond the limits of the growth, and occasionally large blood vessels are seen coursing over the cord to the tumor. When the neoplasm invades the cord itself, there may be little change in color, but the outline of the cord becomes ovoid; at times the margin is irregular, and may be white or reddish in color. As an ulcer epithelioma is irregular and dirty white in appearance.

Following the earliest statements of Sir Felix Semon, the idea became firmly embedded in the minds of laryngologists that carcinoma involving the vocal cords very early produced impaired mobility, even though the growth was not near the cricoarytenoid joint. Sir St. Clair Thomson called attention to the fact that it is dangerous to rely upon this finding and emphasized the point that Sir Semon himself modified his view. It is possible to have a carcinoma of a vocal cord for a long time before there is any impairment of mobility. Hence the diagnosis must be made before this sign appears.

In the sub-glottic type of tumor, symptoms are often hardly discernible at first. The hoarseness may not be present early, and the dyspnea and stridor on exertion which are very valuable symptoms are often overlooked. However, the



sub-glottic type may produce a paresis of the cord, the reason for which cannot be easily seen on inspection.

*Differential Diagnosis.* Laryngeal carcinoma must be differentiated from a great variety of conditions found in the larynx, such as chronic hyperplastic laryngitis, singer's nodes, pachydermia laryngis, benign tumors such as fibroma, papilloma, lymphangioma, or other conditions such as paralysis of the vocal cord, tuberculosis, foreign bodies, syphilis, etc. Most important is the differentiation from tuberculosis and syphilis of the larynx. In tuberculosis, the lesion is always secondary to tuberculosis elsewhere in the body, most often in the lungs. A tubercular lesion is most often seen at first on the posterior wall of the larynx, and may appear either as miliary tubercles, large tuberculomas or masses of tubercles, superficial ulcerations, or infiltration with or without ulceration. Fever is usually present and the sputum usually shows tubercle bacilli. Lues of the larynx is usually accompanied by signs of syphilis elsewhere in the body, and a positive Wassermann reaction. The lesion may appear as a smooth, round, red gumma which later breaks down into a tertiary ulcer characterized by a sharp outline, punched out appearance, with infiltrated edges, etc. In many instances, however, despite a study of the appearance and the history of the patient, removal of tissue with histological examination is required to make the differential diagnosis. It is possible, however, that two or more of these diseases may be present at the same time, requiring the utmost skill and very careful biopsy in order to definitely determine the diagnosis.

The question of biopsy has been a moot one in the minds of many laryngologists. It has been held by some that the removal of tissue for histologic diagnosis stimulates the growth of neoplasms, and that unless an operation follows very soon upon the biopsy, providing it proves positive, there is great danger of rapid extension of the disease. Others have shown that properly performed biopsies do not increase the danger to the patient; but attention must be called to the fact that histologic examination does not always give absolutely definite diagnostic information, and secondly, all preparations must be made so that if the findings are positive, operation can promptly be undertaken. In some instances the patient must be told that

the most careful histological examination may fail to give any reliable or definite information and that it may be necessary to do a thyrotomy in order to definitely establish the true nature and extent of the lesion. In the majority of cases the findings will be those of a squamous cell carcinoma; occasionally, however, adenocarcinoma may be observed. Attention has lately been called to the occurrence at times of lympho-epithelioma and transitional cell carcinoma, both of which are highly radio sensitive. The classification of tumors by Broders of the Mayo Clinic into four grades may also be helpful in determining the prognosis and the method of attack for eradication of the growth.

Benign tumors of the larynx are characterized by the fact that they usually appear distinctly as a definite outgrowth, that they do not infiltrate the surrounding tissue, and do not cause ulceration unless there is direct pressure on the growth. Furthermore, they do not invade other portions of the larynx, do not cause regional lymph gland metastasis, and on biopsy do not show any of the characteristics of malignant growth.

*Prognosis.* Carcinoma of the larynx offers at all times a poor prognosis, but, as previously stated, intrinsic carcinoma has a relatively better prognosis in that it develops more slowly and metastasizes later. When diagnosed early and properly treated, carcinoma in this part of the body offers perhaps as good a prognosis as that in any other excepting the skin. As a rule, if no recurrences are noted in two or three years, the prognosis is very good, but it is safer to set a time limit of five or six years, and if within this period no recurrence is noted, it is quite likely that the patient, when he succumbs, will do so from some other cause.

*Treatment.* The treatment par excellence of malignancy of the larynx is complete removal of the neoplasm. The location of the lesion and its extent in intrinsic carcinoma should determine the character of the operation to be employed. Laryngofissure is especially suited to those cases in which the carcinoma is limited to one true cord and the lesion does not extend either to the posterior end, namely, the arytenoid, or anteriorly to the commissure. If the lesion, however, invades the arytenoid or passes beyond the middle line of the commissure and attacks the opposite cord, a more extensive oper-

ation, usually that of laryngectomy, is necessary. We must emphasize, however, that at times it is impossible to determine pre-operatively just how extensive the lesion is; not until the larynx is opened can one sometimes decide whether a laryngofissure will suffice or whether a more extensive operation is indicated. It is therefore imperative that the patient be advised accordingly, and his consent obtained before operation, so that if complete removal of the larynx is necessary, it can be carried out at that time.

Pre-operative care of the patient is very important. Proper attention to the condition of the teeth and the mouth in general is necessary, for it has been recently shown that carcinoma of the mouth occurs more frequently in cases where dental caries and similar conditions are present. Secondly, postoperative complications, such as pneumonia, etc., are more prevalent when diseased teeth have not been removed and oral hygiene instituted.

*Anesthesia.* While general anesthesia is still used by some, many laryngologists now prefer local anesthesia preceded by morphine or other sedative such as the barbitol group. Sir St. Clair Thomson, on the other hand, is opposed to the use of any sedative before operation. He states that atropin dries the secretion, renders the patient very thirsty and uncomfortable, and that morphine depresses the cough reflex, allowing aspiration of blood and secretion, etc. Local anesthesia, consisting of infiltration of the skin and nerve blocking with 2 per cent. novocaine plus application of cocaine solution to the interior of the pharynx after the thyrotomy, is our usual procedure. Sir St. Clair Thompson and some others advise tracheotomy in every case; Jackson and his associates do not use it invariably, and some apparently never do unless hemorrhage occurs, which necessitates packing of the larynx.

In this country, the technique of Dr. Chevalier Jackson is followed to a very large extent. This consists in splitting the larynx and then carefully dissecting out the tumor, advancing far enough into the normal tissue to be certain that one is beyond the area of infiltration. Sir St. Clair Thomson modified this method by dissecting sub-perichondrially a large portion of one ala of the thyroid cartilage. Gordon New in most cases splits the hyoid bone in order to get wider and easier exposure, and usually does

the operation in two stages if the patient is not a good risk. Sir St. Clair Thomson's phenomenal success with his operation is probably due to several factors: his wonderful judgment based upon his tremendous experience, his great dexterity, and last but not least, the meticulous hemostasis which he institutes at every stage of the operation. This last point is especially important, because postoperative bleeding may occur where particular care has not been observed in tying all bleeding vessels, and this may result in such serious complication as pneumonia, etc. Hautant further modified this operation by also resecting a portion of the cricoid cartilage, thus performing a hemilaryngectomy. Dr. Norman Patterson of England recently carried the operation a step further by means of wide window resection of the cartilage in those cases where a typical laryngofissure will not suffice, and where a total laryngectomy is inadvisable.

*Radium Therapy.* Until a short time ago most operators had been quite skeptical regarding the use of x-ray and radium, and among them Jackson and Mackenzy claim never to have seen successful results because of the necrosis of cartilage which so often occurred. Recently the employment of radium in hitherto unheard of amounts properly screened have been acclaimed as giving wonderful results, but it is still too early to be too sanguine. The followers of this method claim that with proper screening and other precautions injury to other tissues can be avoided and marvelous results achieved, particularly in the so-called radio sensitive tumors.

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## BIBLIOGRAPHY

- Sir St. Clair Thomson and Lionel Colledge: *Cancer of the Larynx*, 1930.  
 Harold Barwell: *Diseases of the Larynx*, etc., 1928.  
 Dan McKenzie: *Diseases of the Throat, Nose and Ear*, 1928.  
 Max Cutler, Director Tumor Clinic, Michael Reese Hospital, Chicago: Personal communication.  
 Gordon New: *Archives of Otolaryngology*, Vol. 9, No. 5, May, 1929, p. 538. "Two Stage Thyrotomy in Patients Considered Poor Risks."  
 Douglas Harmer and N. S. Finzi: *St. Bartholomew's Hospital Reports*, 1927.  
 A. Zuppinger: *Maligne Pharynx und Larynx Tumoren*. Geo. Thieme, Leipzig, 1931.  
 C. L. Regaud, M. H. Coutard and A. Hautant: "Contribution au Traitement des Cancers Endolarynges par les Rayons X." *Xme Congres International d'Otologie*. Paris, July, 1922. P. 175.  
 Norman Patterson: "A Plea for the Window Section Method in Dealing with Certain Types of Laryngeal Carcinoma, Etc." *The Jour. of Laryngology and Otology*. Feb., 1932. Vol. XLII. Edinburgh. No. 2.



## DISCUSSION

Dr. H. L. Ford, Champaign: I wish to commend the essayists upon a very instructive presentation. If they have been able to put over the idea of better and quicker diagnosis, and prompt surgical intervention in carcinoma of the larynx, I feel sure they will feel amply repaid for their time and effort in preparation of the subject.

The study of cancer of the larynx is particularly interesting, because here the disease is manifest in two forms—intrinsic and extrinsic; the former is more amenable to treatment than cancer in any other internal location, while the latter may be most hopeless. This difference depends entirely upon the point of origin. There is no region of the body where cancer gives such an early warning, where it is so slow in developing, and where it remains localized so long as on a vocal cord. On the other hand, cancer originating on an ary-epiglottic fold or the posterior surface of the cricoid develops insidiously, is not sharply localized, and regional lymph glands are involved early. Here surgery often is of no lasting benefit.

Sir St. Clair Thomson says that intrinsic cancer might well be called "chordal cancer," were it not that occasionally it originates in the ventricles or more vascular area of the subglottis. Chordal cancer always produces early and persistent hoarseness. The subglottic type is slower to produce symptoms, the voice may be muffled, but huskiness rarely occurs until the cord proper is involved. Impaired mobility is not an early symptom, but indicates an advanced infiltration, and one should never wait for fixation before making a positive diagnosis. Any one-sided affection of a vocal cord in a man of middle age or over points strongly to malignancy, especially if careful study fails to reveal evidences of syphilis or tuberculosis, remembering of course the instances which may be exceptional, as occasional younger age incidence, and the greater relative frequency of postcricoid cancers in women; also, that syphilitic or tuberculous patients may have cancer.

Put the patient on silence for two or three weeks, with no alcohol or tobacco. If he improves markedly further delay is justifiable. If stationary, or worse, operation, further watching or biopsy may be indicated. There is more danger in operating on a tuberculous larynx, mistaking it for malignancy, than in delaying for a few months pending a definite diagnosis.

Jackson's plan of procedure in the differential diagnosis between syphilis, tuberculosis, and cancer, at the time I took his course four years ago, was as follows: First, a Wassermann test; if negative and he still suspected syphilis, a therapeutic test with mercury, keeping the patient just under the salivation point for eight weeks. No potassium iodide for fear of edema of the larynx. If not improved, lues was excluded. If the Wassermann was positive cancer was not excluded until the patient was cured by mercury.

Second; pulmonary tuberculosis was excluded by the usual means. If present, the laryngeal lesion might or might not be tuberculous. If the laryngoscopic ap-

pearances were doubtful a specimen was taken. Lupoid laryngeal tuberculosis resembles lues so much that both therapeutic test and biopsy might be required.

Third; in all cases not considered definitely benign a specimen was taken under local direct laryngoscopy, with regular or anterior commissure laryngoscopy, using basket punch forceps, and with particular stress laid upon getting tissue adjacent to and including the growth. Hypopharyngoscopy is an important part of the examination. The posterior laryngeal or party wall can be examined only by hypopharyngoscopy. Especially is this indicated where there is difficult swallowing or the arytenoids are swollen and edematous. The technique is the same as for direct laryngoscopy and it should be done at the same time.

So far as surgery is concerned I am inclined to favor local anesthesia with due attention to the preservation of the cough reflex; large tracheotomy tube, well walled off by packing from above; external and internal subperichondrial dissection of the thyroid wing on the involved side, with resection of a part of the wing so exposed. This gives a much more open field, making it easier to do a careful dissection and arrest hemorrhage. I have observed the difficulty which is experienced in some cases by even Jackson and his associates, under ideal working conditions, in following the regular Jackson technique where resection of the cartilage is not ordinarily done. Thomson further claims for the resection more rapid healing; more ample subglottic space; less granulation tissue; no cases of necrosis of the cartilage; and a stronger voice subsequently.

Dr. M. Reese Guttman, Chicago: It certainly has been highly gratifying to listen to this very excellent presentation. The essayists have thoroughly discussed the various surgical approaches that are closely related or similar to a laryngofissure. One should not, however, be given the impression that all so-called intrinsic carcinomata of the larynx are suitable for treatment by laryngofissure or any modifications of that operation. Growths, of course, may be intrinsic and yet may have infiltrated deep enough to involve internal muco-perichondrium, although they only extend for a few mm. along the free edge of the vocal cord. In a series of seventy-six cases of operable intrinsic carcinoma of the larynx seen by Dr. Beck and myself during the past seven years, only twelve seemed favorable to us to be operated upon by laryngofissure. In most of them the growth had extended towards the cartilage or even subglottically and therefore, made them unsuitable for laryngofissure. Consequently, total laryngectomy was indicated. Great care in the selection of cases for operation by laryngofissure is necessary. Sir St. Clair Thompson, with his tremendous experience and large number of cases to draw upon can be very choice in his selection and therefore obtain the fine results that he publishes. It is probably better when the question of laryngofissure or not arises to err on the safe side and perform a total laryngectomy.

The question of so-called intrinsic or extrinsic carcinoma must also be revised. In the past growths of the posterior portion of the larynx involving the party

wall of the esophagus were classed as extrinsic and therefore inoperable. More recent experience shows this not to be true. We have several cases of such growths treated by laryngo-pharyngectomy with subsequent closure of the esophageal defect by plastic surgery, that are alive and well. This is an important point to stress, that even though a growth may be extrinsic it may not be inoperable or hopeless.

The value of radium is more or less questionable in malignancies of the larynx. From a histological point of view only a very small percentage are radio-sensitive. We have studied the histologic specimens of a little over one hundred cases of carcinoma of the larynx and have found four to be transitional cell in type and therefore radio-sensitive. Not a single instance of a lympho-epithelioma was found in this series of cases. There are other factors that prevent a more serious consideration of the use of radium. The effects upon the thyroid cartilage have been disastrous in not a few cases. However, recent developments in the use of the radium bomb have enabled the radium therapist to give an adequate dose within the larynx without any destructive effect on the cartilage. In order to utilize interstitial irradiation operative exposure of the growth is necessary or the introduction by endoscopic methods. The latter does not permit of sufficient accuracy in the placement of the seeds and the extent of the surgical measures necessary for exposing the growth is sufficient to lead one to believe that the expenditure of a little more effort with the use of a laryngofissure or total laryngectomy will be more satisfying.

Just a word relative to the diagnosis of carcinoma of the larynx. Malignancy of the larynx is so protean in its manifestations that it may simulate a great number of pathologic conditions. We have seen cases that were typical characteristic text-book pictures of tuberculosis and syphilis which on biopsy was shown to be carcinoma. For that reason we insist upon a biopsy in every case of laryngeal pathology in which malignancy is either diagnosed, suspected, or even considered.

Dr. Pearlman (closing the discussion): It was my intention in showing these slides to demonstrate that there are a number of ways of attacking carcinoma of the larynx of the intrinsic type; we did not bring carcinoma of the extrinsic type into the discussion. I am sorry to say that we very seldom see the ideal case for treatment. Like the ideal cases our text-books give of typhoid fever, the text-book case of early carcinoma of the larynx seldom presents itself. Most patients usually come too late. Much of the furore about early diagnosis and treatment of cancer has more of a religious fervor about it than of scientific accuracy. Education of the public apparently is not enough; when patients have few symptoms, they do not seek advice early. So often we see cases that we feel something could have been done with had they reached us in time but the patient apparently did not know that he had anything wrong with him. He comes when he is ready to and that is often too late. Our reflections on this state of affairs are sobered furthermore by our experience with those cases that we think

are early but where the ultimate result is as bad as in those that we know have been neglected. The occasional apparent recovery or years of good health following intervention in an instance where there are carcinomatous glands in the neck impress upon us the thought that we do not know all there is to know about cancer. Our feeling is that the successful attack in the future will be one of biologic method rather than surgical. We will require, too, a diagnostic test that can universally and routinely be applied and which will have at least the accuracy of the Wassermann and Kahn reactions.

Those of us who do this sort of work will see types of involvement that do not lend themselves to any classic procedure. In all parts of the world, men are experimenting; there seems to be a definite desire to do things short of laryngectomy. In properly selected cases Sir St. Clair Thomson reports a large series without a single post operative death. It may be that more cases will be treated with radium especially those few that histologically are radio sensitive. Radium in large and until recently unheard of quantities and properly screened may replace operative procedures and not produce the hitherto unwanted perichondritis and other disagreeable reactions. Up to now, the best authorities have frowned on radium. One difficulty with highly radio sensitive tumors is that while the original lesion may yield readily, wide spread metastasis takes place very early.

For those individuals wherein the lesion is too far advanced for the classic laryngofissure, wider spread operations with more extensive resections up to and including the cricoid may be used and a fair voice and airway be retained in a large percentage of instances. Some patients of course may have to wear a tracheotomy tube indefinitely. While we have no reason to boast, I think that some progress is being made.

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## NECESSITY FOR ACCURATE AND COMPLETE CERTIFICATES OF BIRTHS AND DEATHS\*

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The Illinois State Department of Public Health had to write 15,000 letters to physicians in 1931, for additional information required on birth and death certificates filed during the year. Approximately 5,000 of these were written for additional information on death certificates principally relating to the cause of death.

In spite of this effort to get accurate and complete certificates of births and deaths, the U. S. Bureau of the Census returns annually approximately 600 transcripts of death certi-

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\*Read before Section on Public Health & Hygiene, Illinois State Medical Society, May 18, 1932, Springfield.



cates and 250 of birth certificates for more complete and definite information.

Physicians are not alone responsible for this condition. Often times definite information in regard to the cause of death was not given because the physician was called late in the case and saw the deceased only when in a moribund state.

The most of the correspondence in connection with birth certificates related to the number of children born and living, post office address of parents, occupation of the father and the naming of the child.

*Death Certificates:* The death certificate serves as a legal record of the death and the data contained thereon are used as the basis for the compilation of the statistics of deaths.

The certificate consists essentially of two parts, the one comprising the personal and statistical data, the other the medical certificate of death—the part that the physician signs. The physician's responsibility is primarily the supplying of an accurate and complete statement of the cause of death. In addition he is in a way morally responsible for the accuracy of the statistical and personal data secured by the undertaker. He should always look these over, before signing the certificate, because it has happened; especially in hospital cases; that the personal data were supplied by the office for the wrong case.

The physician is not responsible for the filing of the certificate with the local registrar. That, under the law is the duty of the undertaker, and is a requirement for securing the necessary burial permit.

*Cause of Death:* It is very essential that the cause of death be given definitely and completely on the death certificate. For the purposes of the legal record of the death, the cause may be of great importance in cases where the collection of insurance, pensions or annuities is concerned. In the compilation of vital statistics, there is need for accuracy and uniformity. This cannot be obtained if the basic data as obtained from the death certificates are not accurate and complete.

Statistics of causes of deaths are now compiled by the U. S. Bureau of the Census and the several states, also by various cities, villages and towns for their respective territories. If a uniform method of classification were not used

these statistics would not be comparable; furthermore they would not be comparable with similar statistics compiled in other countries. Hence, the use of the International List of Causes of Death, for the compilation of such statistics. This according to the latest revision embodies 214 causes. Physicians should be familiar with this list, so that they can conform to its terminology and give the information necessary for classification of the cause of death as given on the certificate.

A considerable part of the correspondence relative to further information concerning the cause of death is necessary because physicians are not familiar with the subclasses for tuberculosis, heart disease, kidney disease, puerperal causes, cancer and other tumors as at present embodied in this list.

Local registrars should see to it that physicians in their districts are supplied with the latest revision of the "Physicians Pocket Reference to the International List of Causes of Death" as supplied by the U. S. Bureau of the Census.

*Manner of Stating Causes:* For the purpose of classification as will be seen when the joint causes of death are considered, it is essential that the principal, related and contributing causes of death be shown on the certificate.

The principal cause is the disease or injury causing death, not the mode of dying. Related causes are earlier morbid conditions related to the principal cause or any important complications. The contributory causes are the other diseases or injuries contributing to the cause of death. These are the definitions of these terms as used by the U. S. Bureau of the Census.

There exists a good deal of misunderstanding in regard to the use of these terms, and therefore an exact differentiation in their use on the certificate has not been insisted upon by the Department of Health.

On the other hand, the duration of the various causes is of great importance to the proper classification of the cause of death under one rubric in the International List, which is the accepted and required practice. In other words, every case is classified only under one cause and that is the principal cause. This is in part determined by the use of the Manual of Joint Causes, as issued by the U. S. Bureau of the Census. In it, each cause is set forth, showing its relative importance. In general, the impor-

tance given to any given cause in this Manual in preference to all others in the International List corresponds to the world-wide practice in this matter.

The method of determining which cause in a given case is the principal cause is so intricate that practicing physicians cannot and are not expected to master it, for the purpose of entering the principal and contributory causes under their proper headings on the certificate.

By giving correctly the date of onset of each cause, they supply the information necessary for the selection of the principal one. For example, if the following causes are shown in sequence, as indicated by their respective dates of onset the principal cause is self-evident.

(a) Scarlet fever, acute nephritis, uremic coma.

(b) Sore throat, otitis media, sinus thrombosis, meningitis.

(c) Chronic nephritis, arteriosclerosis, apoplexy.

It was scarlet fever, sore throat and chronic nephritis, respectively, in these three cases.

In giving the date of onset for the various causes, physicians should state them at least approximately as elicited by the history of the case. It is not required that they record these dates in accordance with the time when the conditions were first observed by the physician. Many physicians do this, giving the date of onset of all the causes as the date when they made their first observation of them. In chronic cases that were under observation for only a short time before death, this method results in indicating a date of onset which shows that all these conditions were of short duration and consequently, acute when in fact they were chronic. This vitiates the object of giving these dates and although the practice may be in strict conformity with the letter of the law, it is not in conformity with its spirit nor intent.

*Diseases of Major Sanitary Importance:* As a rule the diseases of major sanitary importance are given preference in classification where several causes are given or were operative. These include the infectious diseases from typhoid fever to german measles, the venereal diseases, gonorrhea and syphilis, including the parasymphilitic affections, cancer and other malignant tumors, puerperal causes and external causes including suicide, homicide and accidents,

Chronic nephritis and diabetes on account of their effect on the other tissues and organs of the body are given preference over the related and many other causes which might otherwise be considered as primary.

(a) *Infectious Diseases:* The major infectious and parasitic diseases are given preference in accordance with their significance to public health.

Tuberculosis on account of its importance from a public health standpoint is given preference in classification over a large number of other causes. Pulmonary tuberculosis is given preference over the other forms if the chronologic sequence of the various types is not indicated or unknown. An effort is made to attribute everything to tuberculosis that should be. Thus, pulmonary hemorrhage unqualified is considered as being of tuberculous origin. Pulmonary abscess and chronic pleurisy unqualified are always subject to question.

There are thirteen subclasses under tuberculosis, divided according to parts affected, viz:—

1. Respiratory system
2. Meninges and central nervous system
3. Intestines and peritoneum
4. Vertebral column
5. Other bones
6. Other joints
7. Skin
8. Lymphatic system
9. Genitourinary system
10. Other organs
11. Acute disseminated
12. Chronic disseminated
13. Disseminated unspecified

Consequently, the organs or structures affected should always be given when tuberculosis is the cause of death.

Lobar pneumonia is an infectious disease of major sanitary importance. Terminal bronchopneumonia is not, neither is hypostatic pneumonia. Thus, when pneumonia unqualified is given as a cause of death and chronic nephritis, chronic myocarditis, chronic valvular disease or cerebral hemorrhage as a contributing cause, it cannot be properly classified until it is determined if the pneumonia was lobar, or the terminal broncho or hypostatic type. In these cases, if the lung infection was lobar pneumonia, then it is considered as the principal cause; on the other hand if it was the broncho or hypostatic type of pneu-



monia, then the chronic organic disease is considered as the cause of death.

When meningitis unqualified is given as a cause of death, the question arises, was it simple meningitis or the epidemic or lethargic type?

(b) *Veneral Diseases and Parasyphilitic Affections*: These on account of their public health significance are given great weight and attention in the classification of causes of death. In a case of salpingitis or other pelvic infection, the question always arises if it was due to gonococcus infection. When paresis or paralysis unqualified is given as a cause, it becomes necessary to determine if it was general paralysis of the insane.

(c) *Cancer and Tumors*: Cancer as a cause of death is given preference in classification to every disease except the pestilential diseases like cholera, plague, yellow fever and typhus. It is not given preference over violence as a cause of death.

In deaths from cancer and other malignant tumors it is necessary to give the structure or organ primarily affected, for that is the basis of the subclassification. The International List sets up nine subclasses for malignant tumors according to the structures or organs primarily involved, viz:—

1. Buccal cavity and pharynx
2. Digestive tract and peritoneum
3. Respiratory system
4. Uterus
5. Other female genital organs
6. Breast
7. Male genitourinary organs
8. Skin
9. Other or unspecified organs

Non-malignant tumors are also classified according to the organs or structures involved.

Although there is a class for "Tumors, the nature of which is Unspecified," the U. S. Bureau of the Census and vital statisticians generally are disinclined to classify tumors as a cause of death under this heading.

It is therefore evident that tumor unqualified as to variety or origin is an unsatisfactory statement of the cause of death, and consequently necessitates correspondence with the physician signing the certificate for more definite information.

(d) *Puerperal Causes*: Since these have been harped on as a too frequent cause of death in this country, they have assumed significance

that has spurred vital statisticians and registrars to connect if possible every death in females of child-bearing age with pregnancy or childbirth. As a result the inclusion of deaths attributable to this cause is probably more complete than for any other class except tuberculosis and violence when the criminal abortions are excluded which are hidden under false causes.

Puerperal sepsis has received its due share of significance, but unfortunately in the International Lists of Causes of Death prior to the third or latest revision, its definition was too inclusive in that it comprised deaths from septicemia following abortion as well as sepsis following childbirth. In the latest revision of the list these were set forth under two classes, namely, puerperal septicemia and pyemia, and abortion with septic conditions.

As a result of this change in classification, the number of deaths attributed to puerperal sepsis in Illinois fell from 282 in 1929 under the old method of classifying to 125 in 1930 under the new.

A further review was made at the request of Dr. Andy Hall, Director of Public Health, of the puerperal sepsis deaths in Illinois during 1930; since the sensational article by Paul De Kruif appeared in the March number of the "Ladies Home Journal," blaming physicians and general hospitals for the alleged high death rate from puerperal sepsis and claiming that "child-bed fever kills one out of eighteen of all married women dying between ages fifteen and forty-four."

This investigation showed that an additional 34 of the 125 deaths attributed to puerperal sepsis in 1930 were in fact due to or associated with abortions or miscarriages (one of a pregnant woman no childbirth) leaving only 91 definitely chargeable to puerperal sepsis. Incidentally that represents the death of one out of fifty-seven of all married women dying between the ages of fifteen and forty-four in Illinois.

This study is an example, cited to show how necessary it is to give definite and complete information on certificates of death concerning the cause of death. Letters were written to physicians and hospitals in connection with 21 of the deaths from puerperal sepsis recorded downstate in 1930 with a view to determining if the child was born in the home or in a hospital. These letters were necessary because no

birth certificates could be found on record for these births. The 17 replies to these letters received thus far, revealed that a childbirth had occurred in only 9 of the cases. In all the others, except one, there was an abortion or miscarriage. Two of the abortions were self-induced and one criminal. Yet the physicians had said nothing about this on the death certificate. They had simply given puerperal sepsis as a cause of death. By this carelessness they helped to furnish material for sensational writers and those advocating state medicine whose first aim is to throw the medical profession into disrepute.

Under puerperal causes are included all deaths resulting from pregnancy, parturition and lactation. The U. S. Bureau of the Census says that parturition or miscarriage within one month before death should be stated. Whenever a woman of child-bearing age, especially if married, dies from a disease which might have been puerperal, the cause given should be qualified by a note, viz., Puerperal or Not Puerperal. This applies especially in these cases if any of the following diseases are given as the cause of death.

Acute Nephritis, Albuminuria, Convulsions, Embolism, Endometritis, Hemorrhage, Metastasis, Nephritis, Pelvic Abscess, Peritonitis, Phlebitis, Pyemia, Salpingitis and Septicemia.

(e) *Violent and Accidental Causes:* The law in Illinois requires that all such cases shall be investigated by the coroner and that the certificate of death shall be issued by him. Under a recent amendment of the law, coroners now handle cases where the death occurred without medical attendance.

The law requiring that the coroner shall handle the cases which resulted or are suspected to have resulted from "Casualty, Violence or Undue Means," provides for no exceptions. Consequently, he is required to be called to issue the certificate of death whenever an accident was in any way responsible for or contributed to the cause of death. This is required even if a physician has been in attendance and the means of injury was such that no one was to blame for it.

Thus, fractures sustained by invalids and the aged at home, cuts and other minor injuries, fractures and other injuries sustained by children while at play, food poisoning, dog bites and other injuries by animals, if resulting in complications causing death or in any way contributing to the

cause of death are all subject to investigation by the coroner.

Great weight is given to violence as a cause of death. Where an aged person suffering from hemiplegia following cerebral hemorrhage, sustains a fracture and then develops hypostatic pneumonia or even lobar pneumonia and dies, the death is charged to the fracture.

The manner of injury is used as the basis of classification of deaths from violence and very little or no attention is given to the kind of injury sustained. In the latest revision of the International List of Causes of Death there is no class for accidental fractures. These are classified under Accidental Traumatism by Fall, Injuries by Animals, Traumatism in Mines and Quarries, Accidents from Agricultural Machinery, Elevator Accidents, Other Machinery Accidents, Railroad Accidents, Electric Car Accidents, Motor Vehicle Accidents, Other Land Transportation Accidents and Air Transportation Accidents.

Physicians giving fracture as a contributory cause of death in a chronic case or invalid, rarely state the manner of injury, hence, it is necessary for the Department to write a letter and get this information before the case can be classified and tabulated.

*Indefinite and Unsatisfactory Statements of Cause of Death:* If physicians would keep in mind the 214 causes of death included in the International List and bear in mind that the U. S. Bureau of the Census, the Division of Vital Statistics of the State and the local health department, are required to classify each case under one of the causes in the list, they could readily see that such statements as "Acute Dilatation of the Heart," "Pelvic Tumor," "Tuberculosis," "Pyloric Resection" and "Fracture" are too indefinite to serve as a basis for classification.

Briefly stated the indefinite and unsatisfactory terms which should be avoided fall under the following headings:—

(a) *Merely Prominent Symptoms:* This includes such terms as the following:

Acidosis, Albuminuria, Ascites, Atrophy, Blood Poisoning, Cardiac Dilatation, Cardiac Weakness, Catarrh, Coma, Complaint, Congestion, Convulsions, Croup, Debility, Dropsy, Eclampsia, Edema, Extravasation of Urine, Failure, Fever, Fits, Hemorrhage, Hydrocephalus, Jaundice,



Malnutrition, Paralysis, Pyemia, Septicemia, Shock, Toxemia, Trouble.

(b) *Disease Names Not Qualified by Information in Regard to Principal or Contributing Causes:* The following terms are unsatisfactory for this reason:

Abscess, Acute Nephritis, Bronchopneumonia, Cellulitis, Edema of Glottis, Acute Endocarditis, Gangrene, Acute Gastritis, Acute Hydrocephalus, Infantile Paralysis, Infection, Meningitis, Paresis, Parotitis, Peritonitis, Pleurisy, Ptomaine Poisoning, Acute Salpingitis, Sclerosis, Specific, Tabes.

(c) *Giving the Name of the Disease and Not Stating If It Is Acute or Chronic:* In endocarditis, myocarditis, nephritis (Bright's Disease) and poisoning by certain organic and mineral substances, it is absolutely necessary to know if the condition was acute or chronic before the cause of death can be classified.

Chronic heart and kidney disease take preference in classification over a variety of more or less related conditions. For example, chronic endocarditis is considered as the cause of death even when bronchopneumonia occurred as a terminal condition. If endocarditis and bronchopneumonia are given on the death certificate and the duration of the endocarditis is not stated; then the possibilities are that the endocarditis (unqualified) was an acute endocarditis, complicating a primary bronchopneumonia; or that the bronchopneumonia was a terminal condition in the case of chronic endocarditis. Influenza is classified the same as bronchopneumonia if it occurs in connection with a case of chronic endocarditis, myocarditis or nephritis.

Similar difficulties are encountered with cerebral hemorrhage which is not considered as the primary cause of death if it occurs in connection with a case of chronic heart disease or chronic nephritis.

In poisoning by lead and other substances it is necessary to state if it was acute or chronic. The former is classified as a death from violence, while the latter is usually an occupational disease.

(d) *Without Specifying the Organ Primarily Affected:* This relates to such causes as tuberculosis, cancer, tumor and abscess. On account of the subclasses in the International List under tuberculosis and cancer previously referred

to, it is always necessary when these diseases are the cause of death, to state the organ or structure primarily affected; abscess and tumor unqualified do not lend themselves to classification.

(e) *Using Indefinite Terms for Organic Nervous Diseases:* Organic nervous diseases are important as a cause of death and when definitely stated on the certificate, they are given preference in classification to many other diseases including all terminal infections and conditions. Indefinite terms, especially when they designate conditions which may be functional or symptomatic cannot be interpreted to indicate organic nervous disease. Convulsions, coma and paralysis may be due to uremia or other functional disorders. Paresis and paralysis unqualified suggest general paralysis of the insane and are therefore made the subject of further inquiry. Sclerosis should not be used in the sense of arteriosclerosis.

Encephalitis, meningitis and cerebrospinal meningitis unqualified always raise the question of lethargic or epidemic encephalitis and epidemic cerebrospinal meningitis, diseases of major sanitary importance. The cause of these conditions should be shown on the certificate. For example, if meningitis is due to middle ear disease, mastoid or frontal sinus infection, the death is charged to these conditions instead of the terminal meningeal infection.

(f) *Using Indefinite Terms for Chronic Heart or Kidney Diseases:* These diseases are such a frequent cause of death, that there is a tendency to indicate them on the certificate by short rather indefinite terms, such as "O H D," "Bright's," "Cardio Vascular Disease," "Valvular Disease" and "Rheumatic Heart." These terms are unsatisfactory because they are too indefinite and especially so if given with other causes which might take preference in classification.

Endocarditis and nephritis unqualified always raise the question if they were acute and if so what was the cause. When these conditions are specified as acute; they should be amplified especially when the deceased was a child or a woman of child-bearing age by the statement relative to the cause, even if the statement is negative, such as cause unknown, no infectious disease, no pregnancy or childbirth. The rule is not to consider acute heart or kidney disease as

a primary cause of death, but to charge these conditions to their causative factors.

Rheumatic heart disease may mean acute rheumatic endocarditis or chronic valvular disease. The use of this term should be restricted to the former.

Acute dilatation of the heart is not satisfactory as a statement of the cause of death. If no further information is available, the death must be charged to "cause unknown."

(g) *Not Mentioning Any Operations That Were Performed:* Much stress is laid on operations in classifying causes of death, because it is considered that ordinarily they are performed for a condition that threatened life and if not, like an operation for hernia or others of choice the operation brought on the train of events, e.g., pneumonia or embolus, that caused death.

Common conditions like gall stones, enlarged prostate, hernia, hydrocele, uterine fibroids, enlarged tonsils and adenoids, are not considered as causes of death when indicated on the certificate with some acute infection or other major disease, but when an operation is performed for these conditions and death results following it then they are considered as the cause.

(h) *Giving the Name of an Operation Without Showing the Disease or Condition for Which the Operation Was Performed:* This applies to such terms as pyloric resection, hysterectomy, prostatectomy, cholecystectomy, amputation and so forth. Such operations may be performed for a variety of conditions. All those enumerated are frequently resorted to for the radical removal of malignant growths. Consequently, they cannot be used as a basis of classification of the cause of death.

In operations on the gall bladder and biliary tract, the causative factors commonly encountered, namely, gall stones or cancer should be stated on the certificate. On account of the interest shown by the U. S. Bureau of the Census in attributing biliary tract conditions to their primary source, a negative statement in regard to these conditions should be made whenever necessary, especially if gall stones are not found.

In order to cut down correspondence, vital statisticians have at times accepted appendectomy to indicate appendicitis, but questions arise when this operation is indicated on the death certificate with other operations which

in practice are often performed simultaneously or with which an appendectomy is thrown in for full measure. Appendicitis is given preference in classification to salpingitis (unqualified), cholecystitis and peritonitis. To avoid error in such cases, appendectomy cannot be interpreted to mean appendicitis in accurately classifying these joint causes.

(i) *In External Causes, Giving the Effect and Not the Cause or Means of Injury:* Fracture, shock, hemorrhage, rupture of an organ or crushing of a structure or part, may result from a number of external causes in the International List. As stated before these statements cannot be used as a basis of classification for deaths from external causes, because the means of injury is used to classify this class of deaths.

(j) *In Deaths from External Causes, Not Stating If They Were Suicidal, Homicidal or Accidental:* This and the preceding item are matters that concern especially the coroners because they only can legally issue certificates of death in this class of cases.

(k) *Giving No Information Rather Than Probable or Approximate:* A large proportion of the diagnoses in cases where the physician was called late during the fatal illness, are probable rather than positive. There are some physicians who refuse to make any kind of a diagnosis in such cases, thus making it necessary to charge the death to unknown causes. A probable or partial diagnosis, in such cases, is better than none.

An approximate statement of the date of onset and the age is more satisfactory than giving them as "unknown." This especially is true of the date of onset of the various conditions or processes given as the cause of death.

*Other Statistical Information on the Death Certificate:* Practically all of the data called for on the certificate are used for statistical purposes. The most important item, next to the cause of death that the physician is primarily responsible for is the date of death. This is used as a basis for the chronologic distribution of the deaths.

This item is checked against the dates of attendance which the physician is also required to show on the certificate. If any discrepancy is found in these dates which throw some doubt on the date of death as shown, it is necessary to



correspond with the physician and get the correct information.

The correct statement of the age is necessary for the proper age grouping of the deaths, especially for young infants where such grouping is for days and weeks. Here again the date of death is checked against the date of birth in order to check the age as stated on the certificate.

In the latest revision of the Illinois Certificate of Death, the question, "Where was disease contracted?" is changed to—If a communicable disease, "Where was it contracted?" The answer to this question may contain important epidemiological information for the health department.

In 1931, the State Department of Health made a serious attempt to get full information on the occupation of the deceased on the assumption that the U. S. Bureau of the Census would take up this phase of vital statistics after the 1930 Census. Before the year was ended it became evident that the changes in occupation brought about by the financial depression, were so numerous that a tabulation of occupations of the deceased at this time would not be representative of actual conditions several years prior to the date of death. Consequently, the tabulation of occupations was discontinued at the end of 1931.

The information must, however, still be entered on the certificate, because the U. S. Bureau of the Census is requiring this data for the compilation of data relating to employment.

The latest revision of the standard certificate requires the information in regard to occupation to be stated under four entries. The first two relate to the kind of occupation and if carefully read and understood should result in obtaining the definite information necessary for the classification of occupations, as now employed by the U. S. Bureau of the Census.

The first entry calls for the trade, profession or kind of work done, the second for the industry or trade in which work was done. The Bureau of the Census desires to have the last occupation engaged in by the deceased just prior to death shown on the certificate. If the deceased was not gainfully employed or if he was in a sanitarium or institution, it wants the occupation shown as "unemployed." Apparently, its aim is to get statistics of employment, in-

stead of data relating to the effect of employment upon mortality.

The information on death certificates in regard to employment is required to be supplied by the undertaker over the signature of the informant.

*Stillbirth Certificates:* A separate certificate is required by the Illinois law for the reporting of stillbirths.

Certificates of stillbirth are required if the child has advanced to the fifth month of uterogestation. The certificate resembles the death certificate in that it embodies a certificate of the attending physician or midwife and entries for the personal and statistical data to be signed by an informant. The undertaker must secure this certificate and file it with the local registrar to obtain the necessary burial permit.

The principal information to be supplied by the attending physician is the period of uterogestation and the cause of the stillbirth.

There has been a falling off in the number of stillbirths reported during recent years. Physicians in private practice are probably becoming somewhat negligent in making these reports. In 1930 there were 4,312 stillbirths reported, 2,353 of these or 54.6 per cent. were reported by hospitals.

*Birth Certificates:* What has been said of the importance of accurate death certificates for the purposes of a legal record, and sources of statistical information applies equally to certificates of birth, with this exception, that birth certificates as legal records are more frequently demanded for the individual during various periods and occasions of his life.

The principal difficulty in securing complete certificates of birth, and the cause of much correspondence with physicians and local registrars, is the failure or inability to supply the given name of the child. In part this difficulty is due to the parents changing the name after having given it to the physician or registrar. Not infrequently the name is misspelled.

The mailing of a Certificate of Birth Registration to the parents by the Department of Health, discloses all of these discrepancies and for that reason alone the procedure of mailing these copies to the parents serves its purpose for it discloses these errors at a time when they can still be easily corrected.

According to law, it is the duty of the local

registrar, in cases where the child is not named within the ten days allowed the physician or midwife for filing the birth certificate to "make out and deliver to the parents of the child a special blank for the supplemental report of the given name of the child which shall be filled out as directed and returned to such registrar as soon as the child shall have been named."

The Certificate of Birth Registration calls for the occupation of the parents, under the same four headings as the certificate of death. This information on the birth certificate is required to be entered by the physician. The U. S. Bureau of the Census requires this information for the tabulation of statistics of employment of parents as presented in the annual volume of Birth, Stillbirth and Infant Mortality Statistics.

Much correspondence is necessary to obtain correct information in regard to the number of children born and living. The three questions on the certificate in reference to these data should be answered so as to include the child whose birth is covered by the certificate. This applies also to stillbirths.

The post office address of the parents is required so that the Certificate of Birth Registration can be sent to them. The 1930 revision of the birth certificate called for the "residence or usual place of abode of the parents," which was found to be too general. In the latest revision, this has been changed by adding the post office address.

*Supplemental Reports:* The Vital Statistics Act makes it illegal to wilfully alter otherwise than is provided for in the Act, any certificates of births, stillbirths and deaths. It permits marginal notes to be placed on such certificates, attested by the registrar or official authorized. The Attorney General has held that supplemental reports signed by the person required to furnish the information are the best way of making the necessary corrections on these certificates legally and the Department has adopted this method and found it very satisfactory, in that it furnishes the information over the signature of the informant. When made in triplicate, as is the practice, the original is attached to the certificate, one copy is retained by or returned to the local registrar and the other is filed with the county clerk.

*Hospital and Institutional Records:* The Vital Statistics Act following the model law very

wisely provides that all superintendents or persons in charge of hospitals, almshouses or other institutions "to which persons resort for treatment of diseases, confinement or are committed by processes of law shall make a record of all the personal and statistical particulars relative to the inmates of their institutions." Also that the physician in charge shall specify for entry on the records the nature of the disease or injury and where in his opinion it was contracted or received for all persons admitted to any such hospital or institution for medical or surgical treatment.

If this were done, especially in all almshouses, jails and institutions for the care of the insane, much less difficulty would be experienced in filing complete and accurate certificates of death for persons dying in such institutions. The law requires that for deaths in hospitals and institutions the personal and statistical particulars shall be furnished by the person in charge, who shall obtain them from the records of the hospital or institution.

*Duties of Local Registrars:* Local registrars are required under the Illinois law to carefully examine each certificate of birth, stillbirth or death when presented, to see if it has been made out properly. If incomplete or unsatisfactory, they shall call attention to the defects and in their discretion may withhold the issuance of a burial or removal permit until the defects are corrected. Manifestly, the latter procedure cannot be applied when the birth certificate is found defective.

#### DISCUSSION

Dr. John W. H. Pollard, Evanston: I wish to congratulate Dr. Koehler on the excellence of his paper. It is concise, replete with information and, withal, accurate as to details—all of which is characteristic of Dr. Koehler's method of procedure.

After listening to the multitude of errors which annually occur in the making of certificates of deaths and births, I, as a local Registrar who is supposed to pick up these errors at the time the certificate is received and to have them corrected before forwarding to Springfield, rather feel as though this occasion simulates a confessional for having "left undone those things which I ought to have done and done those things which I ought not to have done." However, I know that in some instances errors which have been committed have been picked up and corrected before the certificates have been forwarded, so some service, though incomplete, has been rendered the State Department of Vital Statistics in the past. I believe I can speak for the other local Registrars



here present, when I extend assurances to Dr. Koehler that we shall endeavor to be of greater service to him and his department in the future.

The paper you have just heard deals largely with the problems facing the state department. Each local Registrar also has his problems to solve. These, of course, vary from community to community. Among our local problems has been the procurement of the cooperation of our local undertakers and those of the adjacent territory. For their benefit we maintain a twenty-four-hour release service. In return, all out-of-town undertakers work through our local undertakers in securing the release of bodies to be taken to Chicago and elsewhere. This method of procedure has dissipated the friction and misunderstanding of the old days and has done away with any suggestion of the so-called "body-snatching" of the days of long ago.

In connection with the causes of death, we have experienced some embarrassment in those instances where pneumonia is given as a contributory cause. Failure of the physician to indicate whether or not the pneumonia is "terminal" makes it necessary to contact the signer of the certificate and secure the necessary information.

Only a day or two ago one of our prominent physicians signed a death certificate giving "pneumonia" as a contributory cause. When notified that he had failed to report a case of *pneumonia*, he stated that this case was not reportable because it was *terminal*. Had the word "terminal" appeared on the certificate to qualify the "pneumonia," the necessity of calling the physician's attention to a presumable omission would have been obviated.

In closing this discussion I want to again congratulate Dr. Koehler on his far-sightedness in putting this information in such readable form that it will attract the attention of physicians and undertakers and recall to their minds some of the details in connection with the completion of death certificates which may have, as a result of the busy daily routine, slipped away from them.

## COMPLICATIONS OF CATARACT SURGERY IN INDIA\*

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This report deals with one thousand cataract operations performed during January and February, 1932, at the Seth Hilarand Hospital in Shikarpur, Sind, India.<sup>1</sup>

I shall describe briefly the routine and technique employed.

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\*Read before Section on Eye, Ear, Nose and Throat, Ill. State Med. Soc., Springfield, May, 17, 1932.

1. The operations reported were done by Dr. Beulah Cushman and Dr. O. B. Nugent of Chicago, Dr. W. I. Lillie of Rochester, Minn., and the author.

The patients were admitted to the examining room in droves of two hundred, filed by the examining physician, a missionary general practitioner, and the intraocular surgical cases assigned to the clean operating room. They were told to squat on the floor while the Indian assistants instilled 4% cocaine and then adrenalin into the conjunctival sac, a procedure which required approximately twenty minutes. Next they were instructed to climb upon the operating table. First the tension was taken with a Baillart tonometer. Then the skin of the lids was washed with a 1 to 10,000 bichloride of mercury solution, the operator using only his fingers (no cotton or gauze could be wasted for this purpose) and the conjunctival sac irrigated with the same solution, any secretion being dislodged by rubbing the lids against each other. No sterile towels or drapery of any kind was employed. The operator scrubbed his hand with soap and water and used no other solutions or gloves. The instruments were sterilized by boiling in water for scarcely more than five minutes and placed in a tray of cold water to quickly reduce their temperature so that they could be readily handled and no time lost between operations. The Indian assistants were very careless and frequently forgot to change the cold water more than once or twice during a morning's work. The sharp instruments were kept in 95% alcohol and simply wiped off and returned to the alcohol immediately after being used. No medication was used after operation. Both eyes were bandaged and the patients lifted off the table, placed on a stretcher and carried to bed. Unless the patient complained of pain, or there was blood or a discharge on the bandage, the first dressing was not done until the fifth day. At that time, atropine drops were instilled into the conjunctival sacs and both eyes bandaged. On the seventh day, a green shade was placed over the eyes and no bandage used and the patient discharged on the ninth day. This routine was varied only in case of complications.

The routine of the clinic has always been the typical Smith-Indian operation with complete iridectomy, but this year various methods were used. Since we could not choose our cases, and the pupils were usually small, an iridectomy was done first after the corneal section. Most cataracts were removed by pressure (56.6%). The Elschmig capsule forceps was employed in

12.8% and the Barraquer operation in 7%. In 7.5% the cataracts were removed with a lens loop but this was employed only in complicated cataracts, dislocated lenses and in those in which vitreous either presented or prolapsed. In 16.1% of the cases, a capsulotomy or extra-capsular extraction was done. This group included most cases with high tension, all the congenital cataracts and those cases where the lens capsule ruptured when attempting an intra-capsular operation. The latter occurred in 71 cases. I have no figures to support my contention, but my impression is that this occurred more often when the corneal incision was too small to allow easy delivery of the lens.

TABLE 1

No.	Smith-Indian	Elschnig Forceps	Capsulotomy	Barraquer	Loop Extraction
1000	566	128	161	70	75

No records were kept of the average run of mature or incipient cataracts. They were all grouped as operable cataracts. There were 952 in this group, 85% of which were mature. Table I-A indicates the types of cataracts operated on in this series.

TABLE 1-A

Mature and Incipient 952	Congenital 17	TYPES OF CATARACT				Secondary 6	Glaucoma with Cataract 23
		Complicated					
		Calcified Lens 6	Old Iritis 13	Dislocated Lens 3	Couched Cataract 3		

The complications include all accidents occurring at the time of the operations and the accidents and infections which followed.

Loss of vitreous occurred in forty-five cases. This group contained three cases of couched cataracts, one dislocated lens, and five cases of glaucoma cataracts so that in apparently normal eyes, vitreous was lost 36 times or in 3.6% of all cases in this series. None of the thirty-six cases had serious visual defects, a fact which bears out Knapp's\* statement, "While I do not wish to minimize escape of vitreous, the visual results of this group speak for themselves." He had 9 cases of loss of vitreous in which the vision was 20/20 in 2; 20/30 in 5; 20/30 in 2.

Infections were very uncommon in spite of the little preparation and the infected conjunctivae which were not treated before operation. In all, there were thirteen infections. Eight were iri-

docyclitis and five were vitreous abscesses. The latter all resulted in blind eyes. These figures are very striking—only 1.3% of infections.

Prolapse of the iris occurred in seventeen cases, eleven times with rupture of the wound and six times in simple incarcerations. One of these occurred in twenty-two cases of intracapsular extraction performed through a round pupil without iridectomy or iridotomy. This was a group of selected cases with pupils which dilated to seven millimeters under the influence of cocaine.

Rupture of the wound occurred in twenty-one cases, eleven with prolapse of the iris and ten with everted corneal flaps. It happened 5 times with the Smith-Indian operation; twice with spoon deliveries, once with Barraquer and once it occurred in a case where the lens followed the incision. No sutures were used in any case at the time of the operation except the first few Barraquer operations yet only nine cases had everted corneae in spite of the fact that many of the patients were sitting up soon after the operations and most of them got out of bed to answer nature's calls. Since this complication was usually discovered on the fifth day, the re-

pairs were not very successful. The repair was made by incising the cornea at the limbus (enlarging the corneal section with a scissors) and drawing a large conjunctival flap over the entire cornea after cauterizing any prolapsed iris or vitreous present. Five of the nine eyes were saved but these had very poor vision—hand movements at 3 feet.

Expulsive hemorrhage occurred in 10 cases and seven of these eyes were eviscerated. No enucleations were done as it is almost impossible to obtain permission for such an operation because of religious prejudice. None of these hemorrhages occurred on the table, but happened on the second or third day. This happened in both eyes of one patient whose tension was Right 25, Left 20 mm. Two other eyes in this group had normal tensions, 17 and 18. The others all had high tensions. One had 30 mm., one 38, one 40, two 60 and one 90. In this group the lens followed the corneal incision once; one case was

\*Arnold Knapp: Report of a Second Hundred Successive Extraction of Cataracts in Capsule After Subluxation with Capsule Forceps. *Archiv. of Aph.*, Vol. 44 (old series), 1921, p. 426.



TABLE 2

No.	Loss of Vitreous	Ruptured Capsule	Indo-Cyclitis	Iris Prol.	Chor. and Expulsive Hemorrhage	Evisceration	Hypphema	—Rupt'd Wound— Iris Prol.	Everted Flap	Vitreous Abscess	Lens in Vitreous
1000 Knapp	45	71	8	17	10	7	36	11	10	5	3
300	32	7	12	11	3	Enucl. 1	11		10	0	0
Percentage											
Indian	4.5	7.1	.8	1.7	1.0	.7	3.6	1.1	1.0	.5	
Knapp	16	2.3	4.0	3.6	1.0	.33	3.6		3.3	0	

a spoon delivery of the lens; three were intra-capsular extractions and five were capsulotomies.

Hyphaema was seen in thirty-six cases, most of which had complete iridectomies. One case had a round pupil and no iridectomy. It was seen in all types of operations but did not impede the recovery.

The lens was dipped into the vitreous in three eyes. It appeared in the conjunctival sac once, was removed from the pupillary space later in the two other cases. One of these developed a severe iridocyclitis and had only perception of light.

In the above table, the figures for this series is compared with the three hundred cases reported by Dr. Arnold Knapp.\* The lower figures represent the same thing expressed in percentages. It is interesting to note that percentages of chorioidal hemorrhage and hypphaema are exactly the same. There was a lower percentage of vitreous and iris prolapse in our series. We had a lower percentage of infections but had five vitreous abscesses while there was none in his series. We had three times as high a percentage of ruptured capsules. Rupture of the wound occurred 3.3% in his series and 2.1% in ours.

It is interesting to note that 110 cases had tensions higher than 25 mm. of mercury. There were 56 between twenty-five and thirty; 20 between thirty and thirty-five; 10 between thirty-five and forty; 12 between forty and forty-five; 2 from forty-five to fifty; 3 from fifty to fifty-five; 6 between fifty-five and sixty and 1 had a tension of ninety. In other words, approximately half of the pathological tensions was between 25 and 30 while half was more than 30 mm. of Hg.

The results of lens extractions in glaucoma cataracts of which there were 23 are especially interesting. Complications arose in 13 of these.

TABLE 3  
TABLE OF TENSIONS

No. Cases	25-30	30-35	35-40	40-45	45-50	50-55	55-60	90
110	56	20	10	12	2	3	6	1

Prolapsed iris occurred in five cases; expulsive hemorrhage in five; eversion of the cornea in two; and prolapse of the vitreous in one. Ten of these cases were not complicated. These results are arranged in Table 4.

TABLE 4  
COMPLICATIONS OF GLAUCOMA CATARACTS  
(23 CASES)

Prolapsed Iris	Expulsive Hem.	Everted Flap	Prolapse of Vit.	Normal
5	5	2	1	10

The visual results cannot be tabulated accurately. No accurate refraction was done in any case. Scarcely any of the patients could afford glasses had this been possible. There were twenty-five blind eyes in the series; 10 chorioidal hemorrhages; 10 everted flaps and five vitreous abscesses. Eleven patients disappeared and could not be found on the fifth day when we made rounds. All the other cases with poor vision had scarred corneae, optic atrophy, or old glaucoma. The intracapsular cases when discharged from the hospital could usually count fingers at six feet, had some redness but with clear cornea and black pupils. The capsulotomy cases had cortex and capsular remnants in the pupillary space. They were all able to get about alone and felt sure that they could see well enough to avoid ox carts and the occasional automobile they might encounter.

Of the later complications, we know nothing. There must be quite a number of secondary cataracts in the capsulotomy cases, some retinal and chorioidal detachments, and perhaps some infections, but being unable to follow up the

\*A Report of One Hundred Successive Extractions of Cataracts in Capsule After Subluxation with a Capsule Forceps. *Archiv. of Oph.*, Vol. 44, 1915.  
Report of a Second Hundred, etc. *Archiv. of Oph.*, Vol. 50, 1921.  
Report of a Third Hundred, etc. *Archiv. of Oph.*, Vol. 5, 1931.

cases, or to get any record of previous years' results, I regret that I must omit that most interesting phase of ophthalmic surgery as done in the mission hospitals in India.

DISCUSSION

Dr. O. B. Nugent, Chicago: It must be remembered that in India we had very bad patients; most patients were non-co-operative in one way or another. This is due mostly to the mental caliber of the patients, most of whom were from rural districts, had never received any sort of education, possessed a very meagre vocabulary and an understanding so inadequate that it would oftentimes tax the ingenuity of our native interpreters to get them to comprehend and execute the most simple orders.

To cite an instance, I will tell you of a very common occurrence. A patient would be led to the operating table and told to get onto the table and lie down. This he would start to do, but the order would only be carried out to the extent that almost invariably we would find our patient sitting upright on the table. It would then be necessary to tell him to lie down on the table—the word to express this command is “suhm”—and it was necessary to repeat this word from ten to thirty times before we made ourselves understood. This was not because he did not wish to co-operate, but because of his poor receptive powers, his exceedingly low mentality, and partly because of fear.

These patients are very religious and their meagre minds are full of all sorts of superstitious religious ideas, so in order to eliminate that element of danger it was often necessary to call in the native padre to repeat a prayer just before the operation—which, incidentally, sometimes worked as well as if a sedative had been administered. Dr. Holland always kept this in mind, and I have seen him quiet hundreds of the most unruly patients by repeating a prayer in their native tongue just before he operated. Dr. Holland has been unusually successful in handling these people, and that is due to the fact that he never overlooked those little things which seem to us so trifling, and yet to those poor, ignorant patients are of paramount importance. Not having him with us this year we missed the benefit of his numerous experiences in the conduct of the affairs of the clinic.

I speak of this to show you to some extent the type of patients we had to deal with, and if, from Dr. Bothman's report of the results of the work, some of the complications seem unusually high, you may realize the disadvantages we had to attempt to overcome.

Several patients we never saw after the operation was performed. We have no records of how long they remained in the hospital or why they left—all we know is that when it came time to remove the dressings to inspect the eyes, the patient was missing.

About half the operations I did during the 1932 season were performed by expression, the remainder

by combination of traction and expression. The results are here tabulated:

Type of Operation	Per-cent	Complications During Operation				
		Burst Capsule	Vitreous Loss	Spoon Delivery	Operation Finished by Smith Method	Dis-located Lenses
Indian	54.6	4.9	4.0	7.7	92.3	1.3
Barraquer	25.4	3.0	1.5	3.0	3.0	0
Forceps	16.8	4.5	0	0	0	0
Dislocated Lenses	0.7	0	100	100	0	..
Lenses Following Incision	2.5	0	50.0	0	0	0

The high percentage of spoon deliveries with the Smith-Indian method is due to the fact that often the spoon was used in unruly patients just as a safeguard.

IMMUNIZATION AGAINST SCARLET FEVER\*

RALPH P. PEAIRS, M.D.  
NORMAL, ILL.

To Sydenham of London is given the credit of first describing the disease which we now recognize as scarlet fever. It was in 1675 that he differentiated it from measles with which it had been confused. The earliest reference to the disease as it appeared in epidemic form was in 1543 when it occurred in Sicily.

Although the disease has been found in all parts of the world yet it has been more prevalent in the temperate zone. The first appearance of scarlet fever in the United States was in 1735 and it occurs more frequently in the northern than in the southern states. It is not as easily transmitted as some of the other contagious diseases but it has always been considered a treacherous disease and occurs most frequently in children under ten years of age. In recent years it has appeared to be less severe and the mortality has not been as high as it was formerly. Probably none of the contagious diseases are more frequently followed by complications of a serious nature than is scarlet fever. The mortality rate does not truly represent the serious nature of the malady.

According to the figures of the State Department of Health there occurred in Illinois during the five year period, 1926-1930, 73,035 cases of scarlet fever, causing 1,172 deaths. This is an average of 14,607 cases and 234.4 deaths. No accurate estimate can be made of those who recovered from the acute attack but suffered from

\*Read before Section on Public Health & Hygiene, Illinois State Medical Society, Springfield, May 18, 1932.



complications, many of which proved to be of a serious nature.

For many years research workers had endeavored to find the specific organism which caused the disease and it was thought to be a streptococcus. In 1923, after several years of intensive work, Doctors George F. and Gladys H. Dick reported that they had isolated the specific organism and had found it was a variety of hemolytic streptococcus. They perfected a test for susceptibility, an antitoxin for therapeutic use and a method of active immunization against the disease. In order to control the manufacture and assure the public of reliable potent material, a Scarlet Fever Committee was organized by the Dicks, a patent was secured and this was assigned to the committee. Biological manufacturers must obtain a license from the Scarlet Fever Committee before offering these products to the profession.

The first scarlet fever antitoxin was produced by Moser in 1902. He injected living beef broth cultures obtained from the throats of scarlet fever patients into horses and obtained a serum which was both antitoxic and antibactericidal. In 1923 the Dicks brought out their antitoxin, which is produced by injecting horses with scarlet fever streptococcus toxin. The serum obtained from the horses is antitoxic and antibactericidal.

One cannot read the abundant literature on scarlet fever which has appeared since this discovery without being impressed by the fact that there is a great difference of opinion among writers as regards the prevention and treatment of this disease. Most writers are agreed that the Dick test is a reliable guide of susceptibility. It seems to us that those who have accurately followed the Dick method of immunization have been favorably impressed with the results. Some physicians have not followed the Dick method but have used antigens which have been followed by severe reactions. Often the discomfort from an urticaria has been worse than the average case of scarlet fever. Immunization can never become popular if the material used produces reactions which are more severe than the disease itself.

We believe that the cause of these severe reactions which have prejudiced physicians against immunization has been due to the fact the Dick method and technique have not been followed.

We have never used any material which has not been approved by the Scarlet Fever Committee and we have never seen a very severe reaction from either the toxin or the antitoxin. We have known of physicians who have used material produced by manufacturers who were not licensed by the Scarlet Fever Committee. Very severe reactions have followed the use of this material. A few experiences of this kind are sufficient to cause a physician to change his mind about immunization. Had the Dick method been followed, these severe reactions would probably not have occurred. We feel that much unjust criticism has been given scarlet fever immunization due to the failure of physicians to carry out the Dick method. We have had no experience in the use of antitoxin as a prophylactic measure.

Our experience with the Dick test and scarlet fever immunization is based largely upon work done during the past seven years at the Illinois Soldiers and Sailors Children's School, an institution which cares for more than 700 children. Late in 1925 we began Dick testing, as scarlet fever had appeared in the institution. Among 464 children tested at that time, we found 147 positive and 317 negative. All positives were immunized by giving five doses of scarlet fever toxin. The reactions which occurred were more severe than those following diphtheria immunization, but were not alarming in any case. Some additional tests were made in 1926 and in 1928.

Since there has been some question as to the efficiency of scarlet fever immunization, we felt that it would be desirable to have our work checked by somebody with more experience in this work. Dr. Gladys H. Dick was invited to come to the institution. In July, 1930, she tested all the children, and we have continued to test all new children soon after their admission. Among 689 tests made during the late summer and fall of 1930 she found 225 positive and 464 negative. Recent tests made upon 86 children show 27 positive and 59 negative. A summary of these tests show 399 positive, 840 negative among 1,239 tested, which is 32% positive. All positives have been immunized with five doses of toxin. The dosage we are now using is as follows: 500, 2,000, 8,000, 25,000, 50,000, S. T. D.

The most frequent symptom found after the

injection of toxin was vomiting. It occurred in about 1% following the first dose, 10% following the second dose, 25% following the third dose, 11% following the fourth dose and 5% following the fifth dose. Most of these cases had temperature for 24 hours, but in no cases were there any alarming symptoms. Since we have given over 2,000 injections of toxin with no serious results, we feel that scarlet fever immunization is a safe procedure.

Two weeks after the fifth dose of toxin has been given we retest these children, and about 8% will still give a positive test. These children are then given a sixth dose the same size as the fifth dose.

We feel that the efficiency of scarlet fever immunization in this institution can be readily *determined by a review of the records.* In 1923 we had 50 cases; in 1924, 5 cases; 1925, 14 cases; in 1926, 75 cases. Immunization was started in December, 1925, during an epidemic. In 1927 we had 4 cases; in 1928, 4 cases; in 1929, 1 case. This occurred in October and we have had no cases since that time, a period of two years and seven months. Our records show that no cases of scarlet fever have occurred among children who have been immunized. There is no doubt in our minds that our freedom from the disease during the past two and one-half years is due to the fact that our children have been immunized, because the disease has occurred in neighboring institutions during this period. From our experience we believe that scarlet fever immunization is just as efficient as diphtheria immunization. We know that scarlet fever can be controlled by a systematic testing of children and the immunization of all susceptibles.

Since there has occurred in Illinois an average of over 1,000 cases per month for the past five years, with an annual loss of 234 lives, is it not time that something definite should be done to control this disease? We have the means at our command to control scarlet fever and if we are to be considered as progressive in the application of preventive medicine, we should make use of this safe and scientific method of control. We wish to express our appreciation to Dr. Dick for the help and advice which she has given.

#### CONCLUSIONS

The Dick test is a reliable test of susceptibility to scarlet fever.

In an institution caring for more than 700 children, scarlet fever has been controlled by testing and immunizing all positives, according to the Dick method.

In no case have alarming symptoms followed the injection of five doses of toxin each to 399 children.

Immunization is a safe and scientific method of controlling scarlet fever, and a more general use of the method should be encouraged.

123 North Street.

#### DISCUSSION

Dr. J. J. McShane, Springfield: Dr. Peairs is to be complimented on the results of his scarlet fever immunization work in the Illinois Soldiers and Sailors Children's School.

I believe it will be of interest in discussing this paper to give some statistics relative to the immunization work that was carried on in some of our state institutions by Dr. S. S. Winner, who was Chief District Health Superintendent, and who died about two years ago. This work was started in two state institutions in northern Illinois in March, 1926. Five doses were given, starting with 300 skin test doses for the first; 1,500 for the second; 7,500 for the third; 20,000 for the fourth and 30,000 for the fifth. Children in seven institutions were given the Dick test and later doses of scarlet fever toxin ranging from 500 skin test doses in the first; 2,000 in the second; 8,000 in the third; 25,000 to 27,000 in the fourth, and ranging from 50,000 to 68,000 in the fifth. The percentage of negative results ranged from 86 to 96 per cent.

In Manchuria, Toyoda and co-workers found that in using the raw toxin they could immunize children to the extent of about 85 per cent. Since 1925 by active immunization they were able to reduce the morbidity among 3,194 primary school children in Dairen to one-forty-third the rate for the unimmunized. Toyoda believes that Dick toxin has a practical value, but we must give more than 30,000 skin test doses if we expect to immunize the individual. However, in this country at the present time some men are giving in five doses more than 90,000 skin test doses.

Dr. M. V. Veldee, Surgeon of the U. S. Public Health Service, has been carrying on a number of experiments relative to the antigenic value of scarlet fever streptococcus toxin modified by the action of formalin. He gave the toxin detoxified antigen to 115 Dick positive individuals. These were divided into four groups—31 of elementary school age; 50 young men and women attending a normal school; 18 children living in an orphans' home, and the fourth group consisted of 16 first year nurses in a general hospital.

The results of his work is very interesting. The number of doses given in the first group was four, the first dose being 5,000 skin test doses; the second 10,000; the third, 20,000; the fourth 30,000. The time interval between doses was seven days and the number of children given the treatment 31, average age



being 8. Reactions none. Number of children re-tested was 30 with no positives.

The other three groups were given three doses beginning with 10,000 skin test doses for first dose.

In group two, 20,000 were given for the second and 25,000 for the third dose. Time interval between doses was 21 days and the average age was 19. Number of pupils given the treatment 50. Dr. Veldee states that there were slight reactions following the first dose, but these grew progressively fewer during succeeding doses. Thirty-four children were re-tested. Positive test none.

The third group of eighteen children, whose average age was eight, were also given 20,000 skin test doses for the second dose and 40,000 for the third, with 21 day intervals. Two children in the group had a slight reaction, one having a slight swelling at the site of injection and the other a slight headache.

In the fourth group, 16 nurses completed the treatment. 30,000 skin test doses were given in the second and 60,000 in the third. The ages ranged between 18 and 20 with the exception of one nurse, who was 34 years of age. Two gave a positive Dick reaction on re-test, fourteen nurses being re-tested.

Out of the 96 persons re-tested only three gave a positive reaction. 96.9 per cent. had their skin reactions rendered negative by the injections given. Only one person had a very severe reaction, and that was a 34-year-old nurse.

We hope that in the near future a scarlet fever immunizing treatment for active immunization will be on the market in not more than three doses for, as Dr. Veldee states, "In order to receive general favor, preventive measures of this nature must be relatively free from discomfort, require a minimum of injections, and be inexpensive. There is, therefore, a real need for a nontoxic, highly antigenic scarlet fever streptococcus product which will be no less effective against scarlet fever than the present raw toxin, yet be more like diphtheria toxoid in its freedom from reactions and in the number of doses required."

Dr. C. A. Earle, Des Plaines: I want to introduce myself by stating that I have given about ten thousand Dick tests and twenty-five hundred immunizing doses. I followed a group of immunized children four years and a half. At the end of two years and a half seventy-five per cent. were immune; at the end of four years and a half sixty-six per cent. were immune.

### THE TREATMENT OF PROSTATIC OBSTRUCTION WITH THE ELECTRIC RESECTOSCOPE\*

HERMAN L. KRETSCHMER, M. D.  
CHICAGO

As one reviews the history of the treatment of prostatic obstruction it becomes evident that,

at various periods during the past one hundred years, procedures were advised that had as their object the relief of the obstruction without resorting to major surgery.

Some of the earliest to focus their attention on this phase of prostatic disease were Mercier and Civiale. They were among the earliest to devise a prostatic bar excisor for the purpose of relieving obstructing lesions at the neck of the bladder. For many years after their contributions this subject received but little attention and in 1874 Bottini devised his galvanocautery for the treatment of prostatic obstruction. In 1900 Freudenberg modified the instrument of Bottini. However, because of certain limitations of this instrument and the poor results obtained with it, as well as the high mortality rate, its use was soon discontinued and was superseded by the modern operation of prostatectomy.

As a result of the perfection of surgical technique, careful preoperative study and the control of hemorrhage, the results obtained by surgery were so far superior to the previous non-surgical methods in vogue at that time, that the surgical treatment of benign hypertrophy very soon became the method of choice.

For about fifteen or twenty years there has been renewed interest in the subject of transurethral removal of prostatic obstruction. About 1910, when Young reported his punch for the treatment of bars, our attention was again focused upon the possibility of treating these obstructions without surgery. Subsequently Caulk introduced his cautery punch. Thereafter the interest in this type of procedure kept on increasing. New instruments and new methods were devised by Stern, Davis, McCarthy, Collings, Kirwin, Day, Bumpus, and others.

Stern's resectoscope probably did more for the development of transurethral prostatectomy than any one single factor. Stern's instrument was improved by Davis. Further development was brought forth by McCarthy with his four-oblique pan endoscope.

McCarthy recognized for several years that the limitations of Stern's technique were due to the character and quality of the cutting current. The chief difficulty was that the currents, as delivered by the machines, were unsuitable for cutting and were also unsuitable for the control of hemorrhage. Finally, machines were developed that delivered suitable cutting currents.

\*Read at the Annual Meeting of the Illinois Medical Society, Section on Surgery, at Springfield, Illinois, May 18, 1932.

This still left the subject of hemorrhage to be dealt with, but this difficulty too was overcome, so that at present the machines deliver both a suitable cutting current as well as a current that controls the bleeding.

There are certain obvious advantages peculiar to the new method of treatment which are lacking with regard to surgical operations, and I would like to mention them as briefly as possible. Some theoretic considerations have also been advanced, but these will be determined with the passing of time. The following are the advantages and I shall discuss them in the order mentioned.

1. A much shorter period of postoperative illness and a shorter period in the hospital.

2. The elimination of shock.

3. Patients will seek relief at a much earlier period than is done at present.

4. A certain number of patients suffering from prostatic obstruction will no longer be denied the possibility of obtaining relief from their illness.

5. Permanent suprapubic drainage in surgery for carcinoma of the prostate will be done away with.

6. The treatment of strictures, contractures and bars, following prostatectomy.

1. *A Shorter Period of Hospitalization.*—It is a well known fact that the period of hospitalization in a large number of prostatic patients is a very long one. Particularly is this the case in the group of patients who, dreading an operation, delay the matter as long as possible. In spite of the dissemination of knowledge among the laity in regard to the possibility of cure by surgery, it is not at all uncommon to have patients admitted to the hospital late in the course of the disease with serious damage to the upper urinary tract, the presence of severe infection in the bladder, prostate and kidneys, and often impaired function of the heart. Patients in this state need a long period of preparation, either by the indwelling catheter or suprapubic drainage before prostatectomy can be carried out. Moreover, the postoperative convalescence is of long duration, necessitating weeks in the hospital.

Following the removal of the prostate by the electric resectoscope, the period of postoperative hospitalization is greatly reduced, and in the early cases, when there is an absence of severe

infection, the average stay is not more than a week. The advantage to the patient from the standpoint of the cost of hospitalization needs no further comment, especially not at this time of economic depression.

2. *The Elimination of Shock.*—When this procedure is carried out rapidly and when particular attention is paid to the control of bleeding at the time the resection is carried out, the element of shock is practically eliminated. In our present series of cases there has not been a single instance of postoperative shock. The advantage of the absence of shock in regard to elderly men, particularly those who have severe cardiac disease and disturbances of blood pressure, whether hyper or hypotension, or suffer from cardiac decompensation, is an exceedingly obvious one.

3. *The Advantages of Having Patients Seek Relief at an Early Date.*—As a result of the dissemination of knowledge among the laity with regard to the disturbances which might occur in the prostate, a certain number of patients consult physicians so as to be enlightened upon ways and means to prevent, if possible, the onset of prostatic hypertrophy. In all probability among the increasing number of patients who today consult physicians there are some who do so to prevent an increase of the disturbance which is already afflicting the prostate; a fortunate occurrence indeed, since the small inceptive obstructions can be relieved by means of transurethral prostatectomy. With this thought in mind, it can easily be conceived that this procedure, with its short period of hospitalization and relative freedom from dangers, will be a decided factor in getting this group of sufferers to seek relief during those early states of prostatic hypertrophy when by treatment the distressing later symptoms may be avoided altogether, or at least ameliorated to a gratifying degree.

4. *A Certain Number of Patients Suffering from Prostatic Obstruction Will No Longer Be Denied the Possibility of Obtaining Relief from Their Illness.*—Similar to what was accomplished by the two-stage prostatectomy in giving relief to a certain group of patients who, before the advent of this procedure, were unrelieved of their distressing symptoms, the new procedure will be the means, in a certain group of patients from whom surgical intervention has been with-



held, of achieving gratifying results by a simple method. There is no denying that the two-stage operation made for safety in a certain group of patients and there is no doubt that in this group of patients the advantages of surgery, as exemplified by the two-stage operation, are beyond dispute. But, on the other hand, I am firmly convinced that the new procedure has a larger field in which to function, since cases of cardiac disease need not be excluded on the ground of danger.

5. *The Advantages Over Surgery in Carcinoma of the Prostate as Against the Institution of Permanent Suprapubic Drainage.*—The electric resectoscope has been of great value in my hands in cases of carcinoma of the prostate. When patients with carcinomas of the prostate first present themselves, this form of treatment is a relatively simple method, since the operation can be carried out rapidly, and the obstruction due to the presence of carcinoma is readily overcome. The carcinoma may be treated by means of radium implantations before relieving the obstruction, or, after the removal of the obstruction radium should be used. Should the obstruction recur, it is a relatively simple procedure to remove the obstruction again. Occasionally radium treatment results in complete retention, but this is readily overcome by resorting to the resectoscope.

It is not uncommon for some patients with carcinoma of the prostate to apply for treatment relatively late in the course of the disease, that is, at a time when a large amount of residual urine is present, or there may be complete retention in which case a suprapubic cystostomy and the insertion of a pezzar catheter are necessary. This means that the patient is obliged to wear a catheter for the rest of his life, and, in some of these cases, the period of permanent suprapubic drainage is a relatively long one because some of the growths increase slowly and are materially inhibited by radium. Since it is highly probable, by means of this new procedure, to save the patient the inconveniences and annoyances of wearing a permanent suprapubic catheter, it must be apparent at once that the advantages are incalculable. Moreover, a patient who is wearing a permanent suprapubic catheter, because of complete retention due to carcinoma, can have his obstruction removed, with the result that the suprapubic fistula is

allowed to close and necessarily the drainage tube is done away with. In several of my own patients in whom I had instituted permanent suprapubic drainage, it has been possible to remove the obstruction by the electric resectoscope and to free the patient of his catheter.

6. *Treatment of Strictures and Contractures and Overlooked Bars Following Prostatectomy.*—The number of cases in which a stricture occurs at the neck of the bladder following a suprapubic prostatectomy is very small, but, in the rare instances in which it does occur, the electric resectoscope offers a simple and easy method to correct this complication. The same may be said for the persistence of overlooked tags, small nodules and median bars.

It has been stated that, in view of the fact that the entire prostate is not removed, this type of operation carries with it the possibility of recurrence. That cases of recurrence are seen even when prostatectomy has been done is a well recognized clinical fact. However, the cases cited in the literature are very few. In a recent survey, I reported instances of true recurrence and found a total of fifty cases. This number is relatively small when one considers the large number of cases that have been treated surgically.

It is interesting to note in this connection that, in the cases of true recurrence, a long period of time had elapsed between the time the prostate was removed and a recurrence of symptoms so severe that a second prostatectomy was necessary. Whether or not recurrences will follow this new method of treatment cannot be foretold; it is a question that will have to be answered in the future. On the other hand, even if recurrences do take place and within a shorter time than after surgery, it will then be a simple matter to employ again the resectoscope and remove a second time the obstructing lobes or bars. The average period that elapsed in the previously mentioned 50 cases of recurrences following surgery was ten and a half years.

The objection has been raised that this method may be followed by strictures at the neck of the bladder. The time that has elapsed in my series of cases has been too short to permit of the development of this possibility. It is therefore one of the objections that cannot be answered at this time.

*Selection of Cases.*—In the selection of pa-

tients, the same care must be exercised in regard to diagnosis and differential diagnosis that obtains when surgery is contemplated. The routine preoperative study and preparation of the prostatic patient has contributed more to the reduction of the mortality rate than has any other single factor. Every patient with prostatic obstruction must be subjected to a complete physical examination before instrumental examinations are carried out and the importance of a careful general examination cannot be too greatly or too frequently emphasized.

Lesions of the cardiovascular system often constitute a grave clinical problem and call for close cooperation between the internist and the urologist. Cardiac disease is present in about 40 per cent. of the cases of prostatic obstruction. Although patients with cardiac hypertrophy, with or without vascular lesions, extrasystoles, angina and occasionally with decompensation, may appear unsuitable for prostatectomy, the majority can, with appropriate treatment, be safely operated upon. But there will always remain in this cardiac group a certain number of patients in whom the cardiac condition can never be improved sufficiently to justify suprapubic prostatectomy. It is particularly in this group of cases that the electric resectoscope can be used with great advantage. I refer particularly to patients who have had severe attacks of angina or who are afflicted with cardiac decompensation. A number of patients, with severe cardiac disease, who had had a suprapubic cystotomy, and at the time the cystotomy was done, were regarded as poor risks for prostatectomy, and were therefore treated by suprapubic catheter drainage and appropriate treatment for their cardiac conditions, have recently been subjected to transurethral prostatectomy and have made smooth and uneventful recoveries. But even though this procedure is less of a risk than the open operation, it is nevertheless imperative that a careful clinical study of all cardiac patients is carried out. Rest in bed is an important item in the treatment and digitalis in one form or another should be administered.

Great care must be exercised in combating infection in this group of cases and the administration of fluids must be carried out with care so as not to embarrass still further weakened

cardiac muscle, and increase edema should either be present.

High blood-pressure, so often present in these cases, should enlist very careful consideration. The bad effect that infection and fatigue always have on high-blood pressure in these cases is well known, but the condition may be greatly improved by controlling the bladder infection by means of large quantities of water, urinary antiseptics, rest in bed, and bladder drainage.

The patients with diabetes mellitus, although formerly denied surgery because of their condition, can be prepared so that treatment may be carried out without any increase in the operative risk.

Patients with chronic bronchitis, asthma, and emphysema should be subjected to a careful preoperative study by the internist and their conditions improved as much as possible. This is a particularly desirable group for transurethral resection.

Foci of infection, such as infected roots and infection of the gums, should be cleared up as much as possible before the operation occurs.

In the group of patients with impaired renal function, it is most essential that this function be stabilized. In case the patient has a long-standing history of urinary obstruction, and upon admission to the hospital shows a suprapubic tumor, a dry, red, harsh tongue, with loss of appetite and weight, great care must be exercised in the preoperative study. It is particularly in this type of case that a too rapid instrumental examination or a too rapid catheterization with sudden withdrawal of the urine may be followed by untoward results. In this type of patient gradual decompression of the kidneys is most essential. It is not unusual for this group of patients to enter the hospital with a suprapubic tumor, a clear, pale urine, a dry, harsh tongue, and dribbling due to overflow (incontinence, so-called paradoxical incontinence). Gradual decompression can be carried out by means of the indwelling catheter. It would be well to emphasize here that in these cases of chronic retention the decompression must be gradual so that the bladder is not emptied at once.

The determination of the renal function by means of blood chemical examinations and the use of the phenolsulphonephthalein tests is most essential. Of undeniable importance is to remember that the patient should not be operated



upon, either surgically or transurethrally, until his renal function has been improved and has become stabilized. In the treatment of impaired renal function, fluids should be administered by the mouth, the rectum, and, if necessary, in the form of subcutaneous saline transfusion. The amount of fluid to be administered will naturally vary with the condition of the patient. When necessary, we have no hesitation in giving from 5,000 to 7,000 cc. in twenty-four hours. It is important, of course, in treating this type of patient not to overtax his heart.

Equally as important as the improvement and stabilization of the renal function is the control of infection. The treatment by means of "intermittent" catheterization and bladder irrigations is less frequently done today than formerly. Even when the greatest precautions are taken this method is open to the criticism of the danger of added infection. Repeated catheterizations sooner or later becomes more and more painful. It has been superseded by the indwelling urethral catheter.

In using the indwelling catheter, great care should be exercised when it is being passed, otherwise traumatism of the urethra may occur. Relatively small catheters may be used and changed at frequent intervals. In order to prevent the development of a catheter urethritis, the urethra, along the side of the catheter, may be irrigated several times a day with a warm solution of potassium permanganate.

In one of the early cases postoperative bleeding was so pronounced that it was deemed expedient to perform a suprapubic cystostomy in order to control the bleeding. The patient made an uneventful recovery.

In several cases slight rise in temperature persisted for a short space of time, but the occurrence did not militate against the favorable outcome.

122 S. Michigan Avenue.

#### DISCUSSION

Dr. Arthur Sprenger, Peoria: Dr. Kretschmer in his admirable way has presented the subject and left little for discussion. However, it has occurred to me that probably one of the reasons for the introduction of the various types of instruments used to relieve prostatic obstruction has been due to the mortality in prostatic surgery. It is true beyond doubt that the mortality following prostatectomy is high—more than four or five per cent. Keyes, in a recent article stated very frankly that following drainage and removal of

the gland the mortality was much above the four or five per cent. noted in the text-books.

I had the pleasure not long ago of hearing Dr. Alcock of Iowa City report 158 cases done by the resection method. He reported a mortality of 27 percent. in the first 25 patients. His cases were not selected. The mortality gradually dropped to five per cent. Deaths were due to the removal of too much tissue and to the cardiac accidents frequently noted after prostatic surgery.

Undoubtedly the resectoscope will do away with many prostatectomies. As Dr. Kretschmer informed you, more patients will be resected due to a fear of surgical removal or because they have contraindications to surgery.

The diagnosis of the obstructing area is important in prostatic resection. The removal of small amounts of tissue will give the desired result. Hemorrhage will not be troublesome if controlled before the patient leaves the table.

It has been my experience that following the use of the Caulk punch we had a number of cases where surgical removal of the prostate was necessary. Davis reported 339 cases of resection with one recurrence. Other men showed more recurrences and some failures. As time goes on and we develop a better technique in the use of the instrument our recurrences and failures will become less.

The preparation of the patient is just as important for prostatic resection as for surgical removal of the prostate. The indwelling catheter and the functional kidney tests were gone into by Dr. Kretschmer. This is not a minor but a major surgical procedure.

With a lowering of our mortality rate we will see prostatics at an earlier stage in the disease. The poor surgical risk with functionless kidneys and a diseased myocardium will soon be eliminated.

Dr. M. P. Cannon, Chicago: Dr. Lake, in his discussion of Dr. Narat's paper urged the doctors to be more liberal and not to be overly critical in discussing scientific papers, for considerable merit is often found in these preparations. The reason we are here today at this convention is to learn from the research worker and to profit by the experiences of our Medical leaders who are master workmen such as Dr. Kretschmer, in their individual fields.

I would like to make an appeal to you gentlemen. Always make a rectal examination in every case, digitally and instrumentally, especially in prostatic cases. We proctologists find many chronically inflamed hemorrhoids that give symptoms of prostatic disease. Six weeks ago a man came to my office, stating that he was to be operated upon for prostatic hypertrophy the next morning. He had been under the care of his family physician for a week without help. At that time a Urologist was called in consultation who advised prostatectomy. On proctoscopic examination I found some inflamed hemorrhoids, which were in my opinion, the cause of his trouble. Thereupon these were treated and his symptoms subsided. Today he is well.

Every man doing my line of work will agree with me that if you gentlemen will use a speculum, and I

advise the Brinckerhoff instrument, instead of depending upon your finger, you will be able to ascertain the condition of the rectum.

Dr. Herman L. Kretschmer, Chicago (closing the discussion): The differentiation between a lesion of the rectum and a lesion of the prostate, at least in our experience, is a very common one and Dr. Cannon's point is very well taken. Dr. Cannon's discussion reminded me of an interesting story that one of our old professors told us as medical students, namely, that a consultant had two privileges which would not embarrass the family doctor; first, the great privilege to make a rectal examination, and second, to give a favorable prognosis.

Dr. Sprenger talked about the mortality. Certainly the mortality with this new procedure will come down as the men who use it become familiar with it.

Regarding the use of the instrument in very large prostates, I feel that very large prostates had better be removed surgically. The amount of tissue removed, as Dr. Sprenger said, depends upon the degree of obstruction. The most striking results and the period of shortest stay in the hospital have been in cases in which we removed what apparently to the onlooker was an insignificant amount of tissue.

Many are of the opinion that this new procedure will stimulate the patients to seek relief early in the course of the disease. As a result of this we will no longer see the large number of cases with advanced pathology in which one sees extensive dilatation of the ureter and kidney pelvis, complete destruction of the kidney, suppurative, lesions of the kidney, the presence of large stones in the bladder as well as large diverticula.

I think this type which represents far advanced pathology means that the patient comes in late in the course of the disease. Our conception of the picture of that type of pathology will change.

## BILE DUCTS AND JAUNDICE WITH RELATION TO OPERATIVE RISK\*

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The underlying pathology upon which the surgeon evaluates the degree of operative risk, in any case, is of paramount importance. Not infrequently operations on the biliary tract produce poor results, sometimes ending fatally, in cases which pre-operatively appeared to be good risks. While the majority of bad risks in gall bladder surgery are jaundiced cases, it must be remembered that many non-jaundiced patients who are apparently good operative risks react

very poorly, sometimes fatally to an operation on the biliary tract.

Just as the general operative mortality has been lowered by the fundamental knowledge acquired, concerning the kidneys and methods of studying their function, biliary tract operative mortality can be lowered by knowledge and methods of studying liver function. It is now common knowledge with every surgeon, whether he operates many times a day or only once a month, that a patient with badly damaged kidneys is a very poor risk for any kind of surgical procedure. In biliary tract operations, however, we sometimes forget that the intra-hepatic bile ducts play a great role in maintaining liver function, and that these ducts are almost always involved whenever there is an infection in the extra-hepatic bile ducts. With such an involvement there is always some degree of hepatic insufficiency, even though jaundice is absent. Moynihan<sup>1</sup> and, more recently, Flint<sup>2</sup> have shown that with every case of cholecystitis there exists a pericholangitis or hepatitis. Mayo<sup>3</sup> states that "A summary of the deaths occurring following operations for benign lesions of the gall bladder and bile passages revealed the principal causes of death to be hepatic insufficiency." In these cases, therefore, in addition to such factors which ordinarily play a role in surgical mortality we must take into special consideration the question of adequate liver function.

In this connection Graham<sup>4</sup> has found a striking relationship existing between a high retention of dye, such as used for cholecystography, and the danger of death from operation on the biliary tract. This work of Graham in collaboration with Cole<sup>5</sup> has proved to be a great contribution to gall bladder surgery in that it has given an index on the patient's liver function and consequently has provided a better means of estimating the surgical risk. They have proved that the degree of hepatitis, with its associated impairment of liver function, can be estimated by this dye test, and accordingly patients showing a high retention of dye are placed upon a course of preparation before operation is attempted. By this method of procedure they have reduced their mortality rate from seven to about one per cent.

The appreciation of impaired liver function is of particular value in cases which are not jaundiced and are apparently good risks. In look-

\*Read before Section on Surgery, Illinois State Medical Society, at Springfield, May 18, 1932.



ing back over our gall bladder work in recent years it is found that a number of deaths occurred in patients who were adjudged good risks for operation. Several of these cases came to post and, with the exception of a very badly damaged liver, no adequate cause for death could be found. To illustrate one of these cases:

A single woman aged 40 with a gall bladder history dating back several years, complained of attacks of pain in the upper abdomen, not definitely related to the intake of food. The pain was sharp, at times so severe that morphine was necessary, was not referred and was occasionally associated with nausea. The patient never vomited and was not jaundiced. The urine and blood findings were negative. There was no elevation of temperature and the pulse rate was 78. X-ray examination revealed evidences of gall bladder pathology with possible stones. A diagnosis of cholecystitis with adhesions and possibly gall stones was made and operation decided upon. The patient walked into the hospital feeling quite well and had had no attack for about one week prior to entrance. After she was hospitalized for two days, the gall bladder was removed and the patient was apparently in good condition. The pathological report on the gall bladder was: "Chronic cholecystitis with sub-acute changes and cholelithiasis." Forty-eight hours after the operation the patient did not seem to be doing very well and three days later died with no definite diagnosis. The chief findings, at post mortem, were seen in the liver. There was extreme cloudy swelling, together with some fatty degeneration and edema, and evidence of periportal inflammation.

It is interesting to note that this patient was not very ill, was never jaundiced, was correctly diagnosed, and seemingly a very good risk, but died despite everything. A study of statistics reveals that such fatal results are not as infrequent as is generally supposed. It is in this class of cases in which the mortality rate can be greatly lowered by appreciation of existing hepatic insufficiency. Where the hepatic function cannot be estimated, a routine preparation should be given every pre-operative gall bladder case. This to consist of rest in bed for a week or ten days, during which time they should be given large doses of carbohydrate to insure sufficient glycogen storage in the liver.

Another type of case is that in which the infection in the extra-hepatic bile ducts is much more severe, but there is evidently less liver impairment. Because we feel satisfied that with every infection of the gall bladder there is an accompanying infection of the liver, it does not necessarily follow that the greater the degree of cholecystitis, the greater is the accompanying hepatitis. The following case is an illustration:

A married woman, aged 49, presented herself at the clinic on November 11, 1931, stating that in July, 1931, she was suddenly taken ill with very severe pain in the epigastrium which radiated through the right side into the back. It was of short duration and was relieved by an opiate. She had a similar attack in August and at this time an appendectomy was performed. She recovered from the operation and in about six weeks suffered another attack similar to the first two, which was again relieved by opiates. She has since been complaining of pain in epigastrium at various periods. The pain was not associated with the intake of food and always radiated through the right side around to the back. She felt nauseated during attacks but could not vomit. Her previous history indicated an old focus of infection. She had neuritis in the right shoulder at various periods during the last 15 years, influenza 14 years ago, cystitis 7 years ago and has been treated for sinus trouble during the past 2 years. On physical examination there were only two definitely positive findings: tenderness over the gall bladder and, fluoroscopically, fixation of the pylorus to the gall bladder. On the basis of these findings, together with the characteristic attacks of pain, a diagnosis of cholecystitis was made and operation advised.

The patient entered the hospital on November 14 and was operated upon the 19th, at which time the gall bladder was removed. The pathological report read: "The gall bladder is distended with thick, mucilaginous, yellow substance and the cystic duct is completely obstructed by an impacted soft stone. Histological examination of the gall bladder reveals chronic inflammatory changes and bacteriological examination of the contents reveals acellular necrotic material with no pus or organisms." For the first three post operative days she responded rather poorly but thereafter improved quite rapidly and left the hospital December 9 on the 20th post operative day. She has since then been completely well and free from any attacks.

In contrast to the first case cited, this patient was clinically in poorer physical condition, was not considered as good a risk, the diagnosis was somewhat indefinite and yet she made a good recovery. We presume that in this last patient, however, the degree of liver cell destruction was less, despite the fact that the extra-hepatic infectious process was greater and had become more generalized.

Jaundice was not a symptom in either one of these two cases and took no part in increasing or decreasing the operative risk. Jaundice may, however, be a significant factor in determining the seat of pathology and in estimating the surgical risk. In the following case the significance of the development of jaundice and its proper application to surgical risk was misleading.

A physician, aged 63, presented himself for examina-

tion on April 7, 1931, with the following history: He had been perfectly well until 4 months ago when he experienced some gastric distress which he attributed to some indiscretion in diet. He did not improve however and soon noticed that he was losing weight rather rapidly, but continued to attend his patients. His attacks of pain did not seem to get worse but he was constantly losing weight and felt very weak. Early in March, about 3 months after the first complaint, he noticed that his skin was somewhat yellow and within a few days he was quite markedly jaundiced. He continued about his work until April 8 when he entered the hospital. At this time he was very deeply jaundiced, had lost about 15 pounds during the past 4 months and complained of pain in the right upper abdominal quadrant. Physical and laboratory examination spoke for an obstructive jaundice, most likely explained on a malignant basis. April 11, when he was subjected to an exploratory operation, the entire gall bladder region was filled by a huge, irregular, foreign mass. A piece was removed for biopsy and the incision was immediately closed. Examination of the specimen removed revealed a colloid carcinoma. The patient died 48 hours later. At post mortem all land marks of the extra-hepatic bile ducts were lost and replaced by a huge, purple gray, irregular, soft carcinomatous mass. The liver did not reveal any gross cell impairment such as is associated with gall bladder infections. There was only a single small metastasis to the head of the pancreas, and marked diffuse hemorrhages and necrosis were found throughout the body of the pancreas.

The interesting factor in this case is the question of late jaundice and its application to surgical risk. There was no evidence, either clinically or pathologically, of liver cell impairment and certainly death was not due to the mild surgical procedure. We rather believe death was caused by the hemorrhage and necrosis found in the pancreas. If the carcinoma was so far advanced as to involve the gall bladder and all extra-hepatic ducts to such a marked degree that none could be found, why was he jaundiced only a month before death? This we explained on the basis of a colloid carcinoma which is soft, and in this case most likely allowed the ducts to remain patent for a long period of time, still functioning through the carcinomatous mass. The absence of early jaundice might have indicated a lower degree of surgical risk had he presented himself for examination at the time of the original complaint, several months before the first sign of jaundice. The massive involvement, however, at the time of death would indicate that even at that time the malignancy must have been far beyond the gall bladder alone, and the evaluation of surgical risk would have been underestimated.

Operative risk with relation to jaundice could not therefore be determined in this case, despite the involvement of the extra-hepatic bile ducts. This is unusual in that these ducts evidently continued to function even though surrounded, but not occluded, by tumor tissue.

*Summary.* The condition of the liver and its functioning capacity must be considered in order to properly gauge the operative risk in gall bladder surgery.

With every infection of the gall bladder and extra-hepatic bile ducts, there is an accompanying infection of the intra-hepatic bile ducts or hepatitis. It does not necessarily follow, however, that the greater the degree of cholecystitis, the greater is the accompanying hepatitis.

In cases without jaundice or obstructive stones, which are apparently good risks, the liver may be so badly damaged, with proportionate impairment of function, that the patient may not survive a simple cholecystectomy. The mortality in these cases can be greatly lowered by adequate preparation.

The mechanical factor producing jaundice may not manifest itself until late in the disease, in which case the absence of early jaundice may cause the surgical risk to be underestimated.

## DISCUSSION

Dr. Percy Hopkins, Chicago: If we had time to prepare these patients who have biliary tract infections properly our results might be better. We have in spite of careful preparation a rather constant postoperative death. The question of the use of dye in many of these cases is a big problem. While Graham of St. Louis has been able to reduce his mortality very considerably, you must not forget that the use of the dye in some of these cases is not always an entirely safe procedure. You must remember that you are using a substance which is to be excreted by the liver. To a liver that is already hazarded we are going to add another substance to be secreted. While the dye may be harmless certainly we should be cautious about using it in acute cases of cholecystitis.

Jaundice is merely one of the manifestations of hepatic insufficiency. The jaundice itself other than some of the chemical changes that go along with it is not the most important thing with which we are concerned. It is a valuable symptom, of course, when it does appear. Then again in connection with the jaundice we find many times an acute biliary tract involvement, the so-called white bile. This again is a rather treacherous thing. The fact that individuals do have white bile means that they must be treated as far as the bile tract is concerned, preferably by gradual decompression. If in those cases drainage is suddenly instituted we will have a sudden decompression and we



will have in many instances marked curtailment of the liver function with a fatal end. It has been difficult for most of us in the past clinically to determine the exact condition that is present in these cases. We have many times a picture which is difficult to diagnose, a condition which is rather indefinite and in which the patient goes on and dies. He simply does not die in twenty-four hours from shock; probably many of them do not apparently have hemorrhage, but they simply go on and die. Probably some question in bio-physics arises, but we have another question with which we might be confronted and which it might be difficult to differentiate from, that is the question of a possible duodenal ileus without any apparent abdominal distention, with its resulting alkalosis.

Dr. Sidney A. Portis, Chicago: From the standpoint of an internist, this subject of bile tract disease, operative risk and mortality is exceedingly interesting and very important. The whole problem, as I see it, other than matters of operative procedure in bile tract disease, is a medical one. It is very gratifying to have a pathologist like Dr. Markowitz come before the Surgical Section and talk about the mortality and risk in bile tract disease.

There is no more illuminating subject in internal medicine than the problems concerned in the pre-operative and post-operative management. In the past very little attention has been given to adequate preparation of these patients before operation. Unfortunately, outside of a few tests by means of a dye, the cholesterol estimation in the blood or the serum bilirubin content, we have very little evidence pointing to dysfunction in the liver. We know that the glycogenic function of the liver is one of its most important functions, and on the basis of this our attention in the last few years has been directed towards improving and maintaining the glycogenic function of the liver. If you can give your patient a sufficient amount of glucose by mouth, subcutaneously, or even in the vein, three or four days pre-operatively, and follow this same procedure, if possible, five or six days post-operatively, you can lower the mortality in bile tract disease in even the most difficult cases to one per cent. or less. In the hands of any surgeon there should not be a mortality of more than one per cent., barring surgical accidents. In our own work our mortality is far less than one per cent. The selectivity of a given case for operation, in the main, tests the clinical experience of both the internist and surgeon. It is because of the unfortunate immediate operative intervention that must be done in a given case, or a too early intervention in a subsiding cholecystitis, that the fatal complication, acute insufficiency, is brought about.

All of you who have had any experience at all in bile tract surgery have seen patients who have apparently made a good recovery for three or four days, and then, for some unknown reason, as though out of a clear sky, they suddenly become cyanotic, weak, break out in a cold and clammy sweat, and the pulse becomes rapid. The patient develops an anxious expression, and in spite of everything that you do, he succumbs

in twelve to twenty-four hours. Intravenous glucose, with or without insulin, blood transfusion, and all our heroic measures are of no avail at this stage. When these livers are examined at necropsy, the reason for this overwhelming depletion of liver function is seen. We know that if we can give these patients a sufficient amount of carbohydrates, pre-operatively and post-operatively, and when the intravenous method is used small doses of insulin may be added, we can prevent this almost fatal complication by protecting the glycogenic function of the liver. Another thing that many men do not appreciate is that with bile tract operations there are often changes which go above the diaphragm. There are small patches of atelectasis in the lungs which are later focal points for the development of a broncho-pneumonia. The adequate use of carbon dioxide inhalations is a safe method in preventing this complication.

Finally, I would like to say to Dr. Markowitz that I am not convinced by the evidence that he presented this morning that the inflammatory processes are in the bile duct. To me, they are situated in the polygonal cells of the liver, and because of this we have such poor liver function in these cases following gall bladder operation.

Dr. T. M. Larkowski, Chicago: The recognition of infections of the gall bladder and of the extra and intra hepatic bile ducts is becoming increasingly more important. We know that a gall stone in the gall bladder acts like a foreign body does in the eye. Consequently there will be secretion from the gall bladder mucous membrane, the gall bladder becomes inflamed, the inflammation extends to the extra hepatic and then to the intra hepatic bile ducts. After we make a diagnosis and decide to do a cholecystectomy we must be sure that the liver is functioning properly. We must determine the bilirubin and cholesterol content of blood. At the St. Mary of Nazareth Hospital in Chicago we do a routine blood chemistry on all gall bladder patients pre-operatively. In the doubtful cases in order to lessen the operative risk we give glucose intravenously and blood transfusion post-operatively, using 500 c.c. of whole blood by the Percy method.

We have discontinued the use of blood transfusion methods using rubber tubes because we believe the rubber tubes alter the chemistry of the blood and produce chills and vomiting. Using these two procedures post-operatively we believe we have reduced our mortality and have helped our doubtful patients to survive a simple cholecystectomy.

Dr. B. Markowitz, Bloomington (closing the discussion): It is true, as Dr. Hopkins said, that you cannot subject every patient to two weeks preparation before operation. But the great majority of gall bladder cases can be carried along for a week or ten days and such preparation, together with introduction of 5 per cent. glucose by hypodermoclysis in the seemingly poor risks, will greatly decrease the mortality rate. The use of the Graham Cole dye test as suggested by Dr. Hopkins may carry with it an element of danger in that the dye itself is toxic to liver cells but I doubt the

degree of such liver damage. I don't think it is of very great severity.

I was very glad to hear of Dr. Portis' experience with intravenous glucose as a pre-operative measure in gall bladder surgery. We are quite convinced that preparation consisting of routine rest in bed for five to ten days, augmented by glucose in the apparent poorer risks, in all gall bladder surgery will greatly decrease the mortality rate.

#### BIBLIOGRAPHY

1. Moynihan, B.: The Gall Bladder and Its Infections. Brit. Med. Jour., 1928, 1. 1.
2. Flint, E. R.: Association Between Gall Bladder Lesions and Hepatitis in Human Subject. Brit. Med. Jour., 1930, 1041.
3. Proceedings of the Staff Meetings of the Mayo Clinic. Feb. 24, 1932. Vol. 7, No. 8.
4. Graham, E. A.: Surgical Diagnosis. Vol. 3. W. B. Saunders & Co., Phila. 1930.
5. Graham, E. A., and Cowl, W.: Diseases of the Gall Bladder and Bile Ducts. Lea & Febiger, Phila. 1928.

### CRIPPLED CHILDREN'S CLINICS CONDUCTED BY THE COUNTY MEDICAL SOCIETY\*

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There is in the State of Illinois a large number of crippled children. Some of these are hopelessly deformed and handicapped, many can be improved by proper treatment, while some can be made self sustaining by operations and other corrective measures. In many the deformities are congenital, while in others disease and accident contribute partly or wholly to their unfortunate condition.

The crippled child is in most instances a chronic invalid. Too often the parents of these children are poor and cannot provide adequate care or medical attention over a long period of time. Too often such a child is looked upon as a hopeless invalid and very little is attempted for the improvement of his condition. The parents, the doctor and the community finally become reconciled to the belief that nothing can be done. As a result, no one seems to care.

Certain lay organizations have done much for these unfortunate individuals, but there has been no individual responsibility, no well conceived concerted effort, no definite plan of procedure so that for the most part the well meant effort has fallen far short of real accomplishment. It is a well recognized fact that wherever responsibility is divided, great success cannot be obtained. A project can best succeed when personal interest and responsibility activate those

interested in fostering and carrying on the plan.

*Responsibility.*—The job of reclaiming the cripple belongs to the community, the county and not to the state or federal government. The physician of the community, the County Medical Society, should shoulder this responsibility. The County Medical Society, organized as it is for the best interests of the public, is best fitted to carry such a project. Every member feels a definite responsibility to the cripple in the community. The true physician will not shirk this job. Since the beginning of the child's invalidism, he has known this child or has been called upon to give medical attention at some time or another. Most of the cases have been unable to pay him and still he responded to the calls and gave the necessary attention. In the hands of a group of such men belongs the conduct of the children's clinic.

*Personnel.* 1. The officers of the County Society should constitute a clinic committee. Other members of the Society, especially those interested in children and those who have had special training in orthopedic conditions, should be added to the list of workers.

2. In almost every community there are *school, county, city and public health nurses* who may render invaluable assistance in the conduct of the clinic. They can assist in preparing a list of needy children; they should be present on each clinic day, watch the examination of the patient and in every way possible acquaint themselves with the individual cases. They will receive a copy of the diagnosis and recommendation sheet which is dictated by the physician. They will visit the home of the patients and advise and instruct them as to medicine and treatment methods. Furthermore, they will cooperate in every way with the family physician or with the doctor to whom the case has been assigned by the clinic committee.

3. *Women's societies or clubs*, when once informed of the aims of such a clinic, are usually willing and happy to render assistance.

4. *The clinician*, a qualified orthopedic surgeon, can always be obtained without difficulty. The Scientific Service Committee will, I think, be able at all times to secure the services of such a surgeon. He conducts the clinic, makes a complete examination, dictates his findings and outlines specific treatment measures in each case.

\*Read at Secretaries Conference, Springfield, May 17, 1932.



He will arrange for the application of plaster casts and advise braces or appliances when these are indicated. Minor operations can be done on the same day or major operations can be arranged for on a later date. In most instances he will be able to interest one or several physicians in this important work. These men may act as his assistants and will receive some very valuable training. In other words, they will get a very useful post-graduate course in the care of crippled children. The records made by the clinician should be made in triplicate, one going to the nurse, one to the family doctor, while the third is kept as a record along with laboratory findings, x-ray films, etc. During the course of the clinic day, the clinician may set aside one hour for didactic and demonstrative teaching for the benefit of all concerned.

If proper records are kept it will not be necessary for the same clinician to conduct a given clinic at all times, as another may step right in and "carry on" at the next meeting without any break or interference in the progress of the cases under treatment.

*Place and Time of Clinic.* The best equipped hospital in the County should be the regular meeting place of the clinic which may be held quarterly or bi-annually. In the more sparsely settled parts of the state, several counties may combine in this effort.

The hospital should have x-ray and other laboratory facilities, so that all types of examination may be made promptly and without delay. The nursing staff of this hospital should assist actively in the preparation of cases for examination. They should in this way get some most valuable training in orthopedics.

The clinic may be held on the day of one of the regular monthly meetings of the County Medical Society. The clinician may, if he has not already exhausted his knowledge or the patience of his audience, assist in the presentation of the scientific program.

*Funds.* A large amount of money is not required for the conduct of the clinic. Funds from a community chest or budget may be available. A well conducted bazaar or card tournament will often yield a surprisingly neat sum of money. What better use could be made of funds collected in this manner? The physician who has already given much time and effort should not be expected to give financial aid. A committee from

the Woman's Auxiliary may, however, enlist the services of other clubs or groups. The proposition of doing something for the crippled and underprivileged child has a very definite appeal. It should not be difficult to "sell" to your neighbor.

A small registration fee from some of the patients and a larger fee from those with means would go a great way in financing this project. No honest citizen wishes to be pauperized. A small clinic fee will cause the parents to feel that they are doing something to pay their way. Although this service is primarily for the poor, there are often those cases who can contribute rather liberally to the clinic. This class should always pay the family doctor for his subsequent care, even though they have been examined in the clinic.

A committee made up of several members of the medical profession and several selected from lay organizations should act as a *Social Service Committee*, the duty of which shall be to pass upon the ability of the patients to pay something or nothing.

The items of expense are not great. Expensive braces and appliances are very rarely necessary. Simple, inexpensive appliances will do as well. In one county clinic in which I have had the honor and pleasure to assist, we have found need for few braces. I think we have not recommended their application in more than a dozen cases in a period of five years. A brace is often a "mental crutch" and should be dispensed with whenever possible.

The traveling expense of the clinician should not be large, if the distance he travels is not too great.

I have attempted to outline in a general way how a clinic can be conducted under the control and supervision of the County Medical Society. This proposition is not an experiment, as is well shown by Dr. Blair's article in the recent issue of the ILLINOIS MEDICAL JOURNAL. Warren County has made a great success of such a clinic for five years. What they have done in that county you can do. Complete cooperation is necessary. Petty jealousies lead to discord; discord means failure.

It is not suggested that clinics now conducted efficiently by other organizations be discontinued at this time. I believe, however, that there are many counties in which something should be

done and done soon. The County Society is the logical agency to conduct this work. The physician will profit by the experience in treating a group of patients now woefully neglected. This is not just another thing to do, but a job which should have been undertaken long ago.

By taking up this task we expect to accomplish five definite aims:

1. Definite benefit to those poor children who have too often been adjudged hopeless cripples.
2. The education of the public in health measures now neglected.
3. The education of the doctors and nurses so that they may better serve their patients.
4. The education of the legislators so that ultimately financial assistance may be forthcoming in the reclaiming of our cripples.
5. The realization of a hope that some day we may register our born cripples as we now register the births, with the result that early treatment may be instituted; that much human suffering may be avoided and that it may be possible to make producers of many who are now burdens to society.

I make this appeal to you, the Secretaries of the County Medical Societies of the State of Illinois, in order that you may become interested in a most worthy cause; interested in a service for the poor and underprivileged, a service rendered by the physician who, when he took the oath of Hippocrates, swore by Aesculapius and all the gods and goddesses that he would serve humanity to the best of his ability.

30 N. Michigan Avenue.

DISCUSSION

Dr. Andy Hall, Springfield: A few years ago our Legislature passed a resolution instructing the Superintendent of Public Instruction and the Directors of Public Welfare and Public Health to make a survey of the physically handicapped children in the state under sixteen years of age and to report their findings to the following Legislature. This survey was made through the various county medical societies, the school teachers throughout the state and through civic organizations in the various counties of the state. As a result of this survey, we located 10,011 physically handicapped children in seventy-seven counties. From some counties no reports were received. On the basis of this data we estimated that there are 2.2 physically handicapped children per 1,000 population of the state or a total of more than 16,800 in Illinois.

Of outstanding interest in the report are the causes to which the handicapped conditions were attributed. Infantile paralysis was designated three times as frequently as any other single cause. In an analysis of

7,716 case records which were complete enough to justify classification, responsibility for the handicapped conditions appears as follows:

Infantile paralysis .....	2,308
Spastic paralysis .....	1,062
Bone infections .....	907
Tuberculosis of spine.....	650
Accidents .....	555
Congenital deformity (unspecified).....	497
Congenital deformity of joints.....	468
Club foot .....	418
Bow legs from rickets.....	386
Flat feet .....	268
Arthritis .....	197
Total these causes.....	7,716
Miscellaneous .....	2,295

Total .....10,011

We have the names of all these handicapped children with their post office addresses and the nature of their physical defects. If any of your county societies are starting clinics such as they have in Warren County to make such corrections as are possible for these children, we would be glad to furnish each county society with a list of the handicapped children in their county. Furthermore, I feel quite sure that the public health nurses, school nurses and the welfare workers could contact the parents of these children and direct them to their family physician and through the family physician to a county clinic. I dare say there is not a community in our state in which some surgeon cannot be found who can take care of most of these cases and in communities where no surgeon is available, one could be brought in from the outside just as they are doing in Warren County. I can think of no more worth while or humane service that the medical profession can render than to perfect an organization in each county whereby these handicapped children can receive proper surgical and medical treatment.

Dr. J. C. Dallenbach, Champaign: I would like to say a word about the crippled children in Champaign. There was a lot of effort made to interest the County Medical Society in the crippled children's clinics. The difficulty of the clinics throughout the state has been to get the doctors interested. In our own clinic held in Champaign every doctor who is a member of the County Medical Society is sent a card telling the date of each clinic and asking him to bring in crippled children. The orthopedic surgeon who comes there makes a report and that report is sent to the doctor who has referred the case to the clinic. I think much can be done for the crippled children by having the support of the county medical society.

Dr. Hall has told of the survey made by the state. The Elks have in the last three years since they took over the crippled children's clinic in Illinois examined about 5,000 children. The Elks are not trying to work at cross purposes with the medical profession but will cooperate in every respect. We do not restrict the clinic to the poor but we request that every child that comes to the clinic come with a physician or be referred by a physician. The after treatment suggested need not be done gratis by the physician. We have been handicapped by the inability to get the local phy-



sicians to take care of the indigent poor who are examined.

I want to call your attention to one thing the Elks have done. There was a building built in 1914 to take care of orthopedic cases. It lay idle for fourteen years with no patients in it. The Elks after they started their clinics saw there was a need for hospitalization of their cases as the Shriners' Crippled Children's Hospital has a long waiting list. One floor of this building was opened as a hospital. The local lodges of Elks from which the child came had to pay the cost of the child in this hospital, \$15.00 the first week and \$12.50 after that. The Elks then went to the State Legislature and at the last meeting got a bill through which is now providing about \$90,000 a year to run this orthopedic department, for teaching purposes. The cases that go in there are cases that are selected by the Professor of Orthopedics at the University of Illinois for teaching purposes. That is one thing the Elks have done, the bringing to the attention of the Legislature the fact that the building was lying idle and was not being used for the purpose for which it was erected.

Dr. W. D. Chapman, Silvis: We have a statement from Dr. Hall concerning the survey made by the state. Would it be possible for Dr. Dallenbach to give us a statement of the work done by the Elks?

Dr. Dallenbach: This report is to April, 1932. There were 4,734 children examined, of whom 522 children had been given hospital care; 588 children were reported cured or greatly benefited, some are earning their living and the rest are in schools. The Elks are holding 44 clinic centers. The plan is to hold a clinic center in every place where we can get an Elk Lodge to take up the work. There are 83 lodges in Illinois. The sphere of influence of an Elk lodge extends half way to the next lodge. In some parts of the state several lodges have combined in one clinic center. The Springfield lodge takes care of the crippled children of about five surrounding Elk communities. The children come to Springfield for the clinic. Springfield lodge has a well developed clinic for crippled children and hospitalizes locally the cases needing operation. The number of children needing hospitalization is greater than the facilities of the University of Illinois Orthopedic Department and many of them are taken care of locally.

## PRESENTING THE CANCER CONTROL PROBLEM TO THE PUBLIC\*

E. G. C. WILLIAMS, M. D.  
DANVILLE, ILL.

If we will give the public the benefit of what we know concerning the cause and prevention and cure of cancer, we will surely begin to break the wall of mystery, superstition and sense of inevitable calamity with which non-medical minds have surrounded this group of diseases or

pathological states of body tissues. We frequently see the motto of the American Society for the Control of Cancer, "Fight Cancer with Knowledge," but unless we have some definite program of information we are rather short of ammunition for the fight.

In my work with cancer patients, I have encouraged them to ask questions and have found that there are six points of information that are of most interest to the patient, and every one of these sufferers will ask one or more of these questions. If one is ready with definite answers, the patient or inquiring friend will have an increased respect for our grasp on the situation and will be in a better mental state when superstition has been replaced with knowledge.

The answers cannot be stereotyped or learned for recital like a book agent's prayer, but will have to vary with the mentality of the questioner. The background of the answers is the same—only the method of presenting will vary. I have found in talking to lay audiences on cancer control that there is no better approach than by asking and answering these six most common questions. Again the answers will have to vary with the make-up of the audience. One day I may be talking to a mixed high school assembly of students and teachers and the next I may have the pleasure of discussing the questions with a University Woman's Club.

If personal opinion that is not compatible with general medical opinion is used in the answers, one may confuse his questioner. It must be remembered that many of the men we accept as authorities have made talks to lay audiences all over the country. No medical controversy should ever come before the public. Our differences of opinion, if any should exist, must be settled in our own groups.

Each presentation of the cancer problem can easily cover the six questions, although there is ample material in each to make a very interesting ten or fifteen minute talk for a series of radio broadcasts. I will present the six questions with a summary of the material I have used in answering them.

1. *What is cancer and how can I recognize its symptoms?* It is best defined at present as an anarchic uprising in the body. Some of the body cells that have been abused, punished or generally mistreated throw off the body controls

\*Read at Annual Meeting of Illinois State Medical Society, Section on Radiology, at Springfield, May 18, 1932.

that keep their action on an orderly basis and set up a system of growth of their own. Like all anarchies it grows rapidly and without due attention to providing future food and oxygen, forms a tumor mass which soon shuts off its own blood supply by pressure and failure to form new blood vessels to supply the growing tissues, with the result that it decays at the center and becomes the foul, repulsive mass that possibly some of you have been unfortunate enough to see in your own families. In speaking of abuse of cells, I refer, for example to a sharp decayed tooth that may irritate a place on the inner surface of the cheek or tongue for such a long time that at the irritated spot the unhealthy and rapid growth of cells that we call cancer is started. Another example of cancer starting from chronic irritations is seen in the number of cases of cancer of the stomach that follow months or years of chronic indigestion. Whatever the cause of cancer may be, it is an uncontrolled overgrowth of some group of tissue cells.

As an uncontrolled new overgrowth of body cells, the first symptom of cancer would be the appearance or growth of a tumor mass. This growth is often so weak and unhealthy that decay starts in at once and we have the type of cancer seen most frequently around the face that appears to be eating its way into the deeper parts. As a general answer to the second part of the question, one can say that any growing tumor mass on or under the skin, any ulcer that does not heal within a few days, any repeated or persistent bleeding from any organ or part of the body may be cancer and should have the attention of your physician without delay.

2. *Is cancer contagious?* The possibility of cancer being caused by bacteria or other parasites has been disproven so thoroughly and any evidence that cancer is transmissible from one person to another is so entirely lacking that this question can be answered in the negative without qualification. Cancer is not contagious.

3. *Can cancer be inherited or passed through a family from one generation to another?* While we see at times families in which several cases of cancer occur, yet there is no traceable transmission of the disease through generations that will answer any of the known rules or orders of inheritance. The cancers that occur in these families are of different parts of the body. A

careful study of these families leads us to conclude that coincidence is coupled with a family weakness that makes the members less resistant to the situations which may start cancer growth. Cancer is not directly inherited.

*Is cancer disgraceful?* Is there anything about cancer that might reflect unfavorably upon the good name of the patient or his family? Is there any reason why anyone should hide cancer from his family or physician? The answer to these questions is an emphatic "No!" Most of the superstitions and fear of cancer can be traced to the ancient fear of leprosy. In ancient times leprosy was recognized as a deadly and highly contagious disease, and anyone who had it was forced to leave the town and left to die outside the gates or get along the best he could. Any person with a sore, ulcer or tumor was considered a leper and no distinction was made between true lepers and people with cancer or surface tumors. A person with any condition that might possibly be leprosy naturally would hide it as long as possible to avoid the banishment. Many centuries of this attitude have left their stamp on the human mind and we probably inherit this fear of ostracism. Superstition has always faded with the advance of knowledge. We can bury one more old bogey with the clear understanding that there is nothing shameful about cancer and no single social or moral reason why it should be hidden.

5. *Can cancer be prevented?* If we accept the postulate that many cancerous growths start as a result of chronic, mechanical or inflammatory irritations it is only reasonable that if these irritations are avoided and corrected that the probability of their producing cancer can be avoided. Cancer is essentially a disease of middle life and the longer one can delay physical middle life by keeping youthfully fit, the less danger there is of cancer developing. If you would be happy at forty, prepare for it at fifteen. At fifteen look ahead twenty-five years and visualize your appearance then. There is no greater thrill to the person of forty-five than to be mistaken for a person of twenty, and in most instances the individual who gets this thrill has prepared for it by a life of careful living. Care of details of body hygiene need not be a burden but a pleasure, the pleasure being in the knowledge and power of physical fitness. Can-



cer can be prevented in many cases by keeping fit.

6. *Can cancer be cured?* The answer is Yes. Every cancer has a small beginning and if treated properly in its early stages it can be cured. The cure consists of complete destruction of the cancerous tissue while it is localized at the place where it started and before it has begun to spread over the body and become a constitutional disease. There is not at present and most probably never will be a cure for cancer that can be administered as a serum, antitoxin, vaccine or similar substance. The treatment must be directed toward the destruction of the cancer by x-ray, radium, surgery or electrothermic methods. Any secret or commercial cancer cure that may be offered at the present is at the best unproven theory and at the worst a fraudulent and vicious attack on the bodies and purses of innocent sufferers. We must depend upon the destruction of the cancer tissue by x-ray, radium, surgery or electric-heat methods. And when these methods are used early and properly, the results are becoming more and more satisfactory. Cancer can be cured.

As a review of our questions the answers may be summarized in six brief statements:

1. Cancer is an unhealthy and uncontrolled new growth of body cells starting in many cases as a result of chronic, mechanical or inflammatory irritations.

2. It is not contagious or transmissible from one person to another.

3. It is not an inheritable disease.

4. Cancer carries no stigma of shame for the patient or any of his family.

5. Cancer can be prevented in many cases by keeping physically fit and deferring physical middle age.

6. Cancer can be cured if recognized early and treated properly.

While those answers contain the material used at each talk, the manner of presentation must be adjusted to the audience.

Wherever you talk on cancer or other medical subjects, do not ever presume that you know so much more than your listeners that careless or unfounded statements can be used. Remember that among the farmers many of the young folks are graduates of agricultural schools and know more of the laws of heredity and of practical bacteriology than 75% of physicians.

High school assemblies are a delight to any speaker who really knows his material and can give it to them in a dramatic way. But remember that high school students have gained a certain sophistication which they may demonstrate to anyone who tries to hand out unproven information which they will recognize as bunk.

*Summary.* In order to give the best presentation of cancer control to the public, answer the questions that concern your listeners directly. Avoid personal opinions and pet theories. Explain the background of superstitions; don't make fun of them. Avoid controversial points. Don't scatter gloom but urge that most cancers are curable if treated soon enough. Don't urge any special form of treatment, as someone can easily give good arguments to prove that you are wrong. Emphasize the danger of delay and the value of going to the family physician if there is any suspicion of cancer. And, finally, to that family physician: When a person comes with a suspicious lesion, do not belittle his fears and advise waiting for developments, but act, for each cancer has a small beginning, develops slowly at first, and above all preach that most cancers are curable if treated properly and soon enough.

## DISCUSSION

Dr. M. J. Hubeny, Chicago: I can not add anything to the remarks made by Dr. Williams because he has covered everything so efficiently and very appropriately.

I wish that Dr. Williams' paper could be printed in other journals and be broadcast so that it would be realized that radiologists also are considering the cancer problem very seriously.

It has been erroneously stated that the lay-people know more about the cancer problem than the average doctor; this, of course, is not true and such statements should not be made as they are misleading. If we have differences, and there are many justifiable ones in medicine, let's not make them for public consumption where they are apt to be taken literally.

One of the by-products of the promiscuous cancer program has been the creation of the cancer phobia. nevertheless, the great good done by appropriate education more than offsets the psychoses created.

Dr. Harold Swanberg, Quincy: I think this subject of cancer is an important one, and we should utilize every effort we have at our disposal in order to educate people to a greater appreciation of cancer and what we can do for it.

I should like to relate just briefly a cancer campaign that we carried on in our community some time ago. We induced Dr. Bloodgood to come to Quincy to put on a cancer campaign. We got our health department to donate \$75.00 and among the physicians we raised

approximately \$400 to pay the expenses of this campaign which was sponsored by the county medical society.

We went about it like this: We utilized the newspapers to run advertisements in regard to cancer and also to advertise the big public meeting we were going to have with Dr. Bloodgood as the speaker. We had 10,000 circulars printed on cancer. We had the Boy Scouts distribute these circulars to every home in the city. We rented the largest theater in the city. Every seat in that theater was taken and quite a few hundred people could not get in when the time came for Dr. Bloodgood to talk. Dr. Bloodgood talked for seventy minutes that night and not more than a dozen people got up and left during that time. We thought we did a good piece of work and I think that we are still reaping the rewards of the money we spent for that day.

Dr. Henry W. Grote, Bloomington: I am glad to have heard this presentation of Dr. Williams. I think that there are a lot of people who need some education regarding cancer, and my only regret is that this paper could not have been presented in the Section on Medicine. About a week ago I received a postal card in the mail, and I was about to throw it into the waste-basket when I saw the name of a friend of mine on it. It was regarding cancer. I do not know whether that is a good way to scatter news, but I do think that radio broadcasting on the cancer problem is a good way to handle it.

I should like to take this opportunity of expressing my appreciation of this presentation, and I hope that when Dr. Williams presents his talks over the radio that they will be divided for the different ages and the different activities in life.

Dr. Perry Goodwin, Peoria: We have followed a plan where the Society for the Control of Cancer sends out a great deal of literature or pamphlets which are prepared for the laity. We have those pamphlets distributed in our reception rooms, and it is surprising how many people take one or two of them and ask if they might take them home. I think that has helped to educate the public.

Dr. Cantrell, Bloomington: I want to tell you of an interview I had with the superintendent of a hospital—a fine lady, well educated. She said, "Have you decided whether or not that radium will cure cancer?" I said, "We positively know that many cancers can not be cured." She said, "Can't you find a cure for cancer?" I said, "No." "Why," she said, "you are pessimistic." I said, "I think not. The history of medicine written for over 2,000 years has no disease that has no mortality rate." Then I saw that I had her where she was listening, and I said, "But we have as good a cure for cancer today as you have for diphtheria." She said, "Oh, no! Why we can cure nearly every case of diphtheria." I said, "Yes, if you get it early, but supposing it is four or five days along before you see it?" "Oh," she said, "there is no use giving the antitoxin then." I said, "Well, you have my point."

If we can educate the profession to send us the cases that are the forerunners of cancer, whether or not they

be cancer does not amount to anything to me; it is the knowledge that it will be a cancer if it is let go, and not go to work and paint that cancer with iodine or with anything else that is irritating, as I have had done on a number of cases, and treat that thing for three months before I was permitted to see it. We need more education along the line of the early recognition of cancer in the medical profession, I think, worse than any place else I know of. How we can get at that, I do not know. I sometimes think we made a mistake having this paper read in a separate, distinct section; it should have been read to the general internes and surgeons. I feel that we should have more direct contact in some way.

Carroll Eugene Cook, Chicago: In our Clinic at the Municipal Tuberculosis Sanitarium, we are privileged to meet the students of all of Chicago's Medical School.

It is interesting to watch the average student's reaction when they are asked to make a diagnosis by interrogating the patient instead of making a diagnosis from sight.

Patients having even the smallest erosion of the lip are always carefully quizzed relative to the possibility of malignancy.

I feel, although the patient may have been referred for something else and yet presents a suspicious lip or mole, that that patient should be questioned and the mole or lip erosion thoroughly investigated and that we should not hesitate to suggest to the referring physician that he be on his guard concerning condition.

Doctor Williams is to be commended for his excellent paper.

Dr. B. C. Cushway, Chicago: Cancer is a very important subject and I think that Dr. Williams should be congratulated upon his presentation. His paper shows systematic procedure and very careful detail in carrying out the educational program. We know that the public is interested in this subject. The public is becoming cancer-minded, as it should.

Of course, if we are going to do anything in this campaign regarding the relief of cancer, we must educate the laity to come early for relief. In addition to educating the laity we must also educate the general profession. As many of you know, the Radiological Society has been working on educational work relating to radiological procedures. This includes educational work on cancer, and we feel that it is a very important subject. I was very glad indeed to hear a paper presented on this subject before the section, and I am sorry this paper could not have been presented before the Surgical Section or the Section on Medicine.

Dr. E. G. C. Williams, Danville: The radio talks that have been given were sponsored by the Douglas County Medical Society, a really wide-awake crowd that seems to be trying to do something for its communities. These talks have been broadcast from a local station, yet we have had replies from 160 miles around us. It is estimated that between one and two o'clock on a clear Thursday afternoon over 30,000 people are listening to station WDW. I am glad Dr. Grote mentioned the post-card. These post-cards were



sent to physicians all over the area that is supposed to be reached by this station. I will admit these postcards were sent out at my request, because I wanted comments from the physicians.

I believe that along with the education of the lay public it is just as well that the medical public hear these broadcasts, so that they may be able to discuss anything I have said. At first, I thought I would just talk to the people on the radio, because that is my disposition. I soon found that that was not good policy; so in these broadcasts every word is written carefully, and I read the paper word for word. A copy of the broadcast is filed with the Secretary of the Society, who is listening in, and who checks up, so that if anyone is going to quote what is said, he must quote it correctly.

The entire broadcast plan is to take the ideas of fear, superstition and ignorance out of the situation. The letters and questions coming into the station show that people are actually thirsty for such a program.

Each broadcast takes up a certain question. For instance, tomorrow the question will be: "Is there anything shameful or disgraceful about cancer?" Does it cast a reflection on my name or family? The attempt will be made to answer that question, taking out superstition, fear and false information. If any of you listen to any of these broadcasts and do not agree with anything I have said, please feel free to write to me with criticisms and suggestions for their improvement.

### IS THE ABNORMAL TO BECOME NORMAL\*

LENA K. SADLER, M.D., F.A.C.S.  
CHICAGO

The various dysgenic classes which are so rapidly increasing in the United States constitute our vast "aristocracy of the unfit." They are an undesirable group of citizens which the more thrifty, intelligent and superior stocks willingly tax themselves to support and perpetuate. This increasing horde will ultimately overrun and destroy the diminishing posterity of the better classes unless a practical program of restrictive eugenics is adopted and effectively executed.

This paper is presented in the hope that representatives of the Illinois Federation of Women's Clubs will recognize that civilization is doomed if we continue to drift down the stream of a few more generations on the defenseless raft of mistaken brotherly love and blinded sentimentalism.

We desire to hold before you a racial mirror in which you (representatives of the better racial

strains living in these United States of America) are invited to gaze while we briefly present the real situation of Uncle Sam's family of one hundred and twenty-three millions.

We are supporting in public institutions an idle population of defectives amounting to more than 1 per cent. of the total population, including children, at an estimated annual expense of more than five hundred million dollars.

The names of these insane, idiots, criminals, and paupers are registered in state hospitals, asylums and prisons, together with some facts respecting their pedigrees. And we are told that the institutional registration is but a small per cent. of the total number of defectives.

Who are these undesirables that are so tenderly provided for by the taxes of the thrifty? In 1930 the United States census gave the number of blind as nearly sixty-five thousand—an increase of eleven thousand over the previous census; the American Foundation for the Blind estimates that there are more than one hundred thousand (114,000), nearly five thousand of whom were born blind, have blind relatives, and will no doubt produce blind children.

Twelve thousand of the hundred thousand deaf people in the United States were born deaf, and 32 per cent. have deaf relatives and may produce deaf mutes.

In 1928 there were nearly four hundred thousand (372,101) patients in our public institutions; every day in the year more insane patients occupy hospital beds than do those suffering from all other diseases combined, including tuberculosis, cancer, childbirth, etc., and they are increasing at the rate of 72 per day.

In 1928 nearly sixty thousand people entered State mental hospitals for the first time, and in addition, fourteen thousand were admitted who were suffering from a recurrence of mental diseases for which they had received earlier hospital treatment. This is an increase of nearly ten thousand over the previous year.

In New York State, one person in ten who reaches adulthood will enter a mental hospital before he dies. It is estimated that four out of every one hundred children who enter school in the United States and Canada will some time be admitted to a mental hospital—a larger number than will graduate from college.

Eighteen per cent. of all the people in the world are dull normals. They never have gone,

\*Read before Illinois Federation of Women's Clubs, May 19, 1932.

and never will go, farther than the fourth grade in school. Two per cent. of all human beings are feeble-minded. It is estimated that there are 650,000 feeble-minded at large, outside of institutions. The number of epileptics in the United States, now nearly two hundred thousand, is increasing year by year, and of them a large per cent. are feeble-minded.

There are 100,000 paupers in almshouses. They are a rapidly shifting group, drifting into, and out of, these county institutions, which suggests that they are inefficient and of low grade mentality.

In 1929 there were more than a hundred thousand (116,000) inmates in prisons, penitentiaries, reformatories, and institutions of detention in the United States, an increase of nearly ten thousand in a single year.

Let us look for a moment at the money thrifty citizens annually pay in taxes to care for this vast army of defectives and delinquents in penal institutions, state hospitals, almshouses, etc., of the United States. For the fiscal year 1928 there was expended for the deaf, blind, and mute over thirteen million dollars (\$13,075,663); for the mentally diseased, over one hundred million (\$103,239,249). If the rate per cent. charged for institutional depreciation and the per capita cost for legislation, courts, etc., be added, the annual sum expended in this field by tax payers amounts to almost one hundred fifty million (\$143,353,933). If we add to this a fair estimate of the loss of future net earnings of the average first admissions to hospitals for mental disease, the total is nearly seven hundred million dollars a year (\$686,603,410). The annual cost of the care of the inmates in our penal institutions and houses of correction is over fifty-five millions (\$55,824,887). Putting all these figures together, but omitting court costs and legislative and institutional depreciation, we are annually taxed for the care of the mentally diseased, the defective, and the delinquent, 35 per cent. of the total expenditure by all the states for public school education.

In our own Illinois the latest figures of the state statistician show that in 1928 the thrifty people of this state were taxed for these undesirables confined in institutions, as follows for the care of defectives, nearly seven hundred thousand dollars (\$682,452.38); for the feeble-minded, over one million (\$1,031,189.44); for

epileptics, over one hundred thousand (\$120,000); for the deaf, over three hundred thousand (\$322,615); for the blind, over two hundred thousand (\$219,621.38); for the insane, over six million (\$6,104,077.85); for new institutions and for improvements in those already existing, over five million (\$5,267,155.44). An additional million a year is spent by the state in directions other than institutional—a grand total of over twenty-two million dollars, the tax of the thrifty for the great army of defectives and criminals in this one state alone. We spend only five times this amount on our public schools. Think of it: one-fifth as much money spent on defectives and delinquents as for the support of the public educational institutions!

The tragedy of it all is not that we are spending these enormous sums this year, or even that we shall continue to do so during the lives of these undesirables who today are incarcerated or who are otherwise wards of the community, but rather that we and our children's children must continue to do this for untold generations, unless something is done about it; for mental defectiveness, which is at the bottom of it all, *is directly inherited*. As long as these individuals are allowed to propagate their kind without let or hindrance, the demand for the expenditure of these vast sums will not only continue at the present rate, but will increase from year to year in alarming proportions.

There is a startling relationship between vice, crime, and drunkenness, and poverty and feeble-mindedness. Recent psychic studies show that criminality as such is not hereditary; that which is inherited and which is associated with crime is mental disorder. Eighty-five per cent. of the youth brought into the Boys' Court of Chicago are mentally disordered, and over 50 per cent. of all criminals everywhere are mentally sick.

In Illinois alone, if our criminals increase each year at the present rate, we shall have an additional 10,000 inmates of penal institutions to deal with in just seven years. The prison population of Illinois for seventy years has shown a tragic growth: the last ten years has witnessed an increase greater than that of the previous sixty, and 1931 exceeded that of any previous ten-year period. The feeble-minded at Lincoln and Dixon increased 5 per cent. over 1930.

The modern civilized races are proud of their ability to control nature. What an insult to our



intelligence to intimate that we cannot control human reproduction so as to deliver society from the burden and disgrace of having to support helpless defectives and dangerous degenerates at a cost of far more than five hundred million dollars a year.

Suppose, my clubwomen friends, a new disease plague should descend upon us which would strike down 2 to 3 per cent. of the population, not merely rendering them inefficient but actually throwing all these smitten individuals on the community for their entire support at a cost of over five hundred million dollars a year. What would we think? What would we do?

We are today face to face with a much more serious problem—one of gigantic proportions—for while these plague victims would not transmit their ailment to the succeeding generation, while the annual expense would cease with their deaths, the menace of feeble-mindedness, insanity, and delinquency is a rising tide, constantly growing in volume, because these enemies of society pass on their faulty mental and moral taints to their rapidly increasing progeny. Must we sit supinely by and let all this go on? No! a thousand times, no!

Here we are coddling, feeding, training, and protecting this viper of degeneracy in our midst, all the while laying the flattering unction to our souls that we are a *philanthropic*, charitable, and thoroughly Christianized people. We presume to protect the weak and lavish charity with a free hand upon these defectives, all the while seemingly ignorant and unmindful of the fact that ultimately this monster will grow to such hideous proportions that it will strike us down, that the future descendants of the army of the unfit will increase to such numbers that they will overwhelm the posterity of superior humans and eventually wipe out the civilization we bequeath our descendants; and all this will certainly come to pass if we do not heed the handwriting on the wall and do something effectively to stay the march of racial degeneracy, for it is said that even now three-fourths of the next generation are being produced by the inferior one-fourth of this one.

Public lethargy and general indifference to this subject is due to the fact that we have become more or less accustomed to these conditions. Davenport says, "We have become so used to crime, disease, and degeneracy that we take them

for necessary evils. That they *were* in the world's ignorance, is granted. That they must remain so, is denied." The great horde of defectives in the world today have the right to live and enjoy as best they may whatever freedom is compatible with the lives and freedom of the normal and thrifty; but society has the undeniable right, yes, and is bound by the duty to protect itself, by whatever methods it may deem wise, against repetitions of hereditary blunders. If my profession continues to try to save every weak child that is born into the world; if we continue to serve the unfit baby in our welfare stations, dispensaries, and clinics, and if this coddled, protected weakling grows to adolescence and shows that it cannot get out of fourth grade at school, that it is manifestly defective and degenerate, and if we know that it is likely to produce only unfit individuals; then, we maintain that society owes it to the medical profession on the one hand and to itself on the other, to say—in substance—to this child: "We will continue to do the very best for you; you shall be educated or trained to your fullest capacity—and then you shall be either segregated or sterilized—we will do our full duty by you, but there must be no more like you."

One of the most terrible blunders connected with our present management of these classes is that we keep some of them incarcerated in custodial institutions until they grow up, become sexually mature, and then, when because of the training we have given them, they have become partially or wholly self-supporting, they are forthwith turned loose upon the public to begin their calamitous career of freely reproducing themselves only to curse the next generation. Segregation, to be effective in cutting off defective germ plasm, must be strictly according to sex. In segregating the female, the attendants immediately in contact with these unfortunate individuals should be of the same sex, for we should remember that each year there are born over one thousand illegitimate children to feeble-minded mothers on our county farms.

The chief objection urged against segregation is that of expense; this is not a valid objection in view of the enormous amount of money spent in conducting the courts, and for the maintenance of hundreds of institutions of correction and detention which at present do not care for

one-tenth of our defective and antisocial population.

The expense would normally decrease with each decade and would be enormously diminished in a single generation. The details of the program of segregation are too large a subject for this paper, but we merely say in passing that these undesirables could be located on state farms and their labor so utilized as to make them largely self-supporting. A large per cent. of the feeble-minded would be able to do enough work to provide for their own care. The group which could not contribute to its own support, such as the insane, the highly criminal type, the epileptic, etc., the state would continue to care for as at present. The point we want to emphasize is that if they are *all* incarcerated for one lifetime so that they cannot reproduce their kind at all, our problem will largely solve itself in two generations.

And now concerning sterilization as a means of stopping reproduction on the part of the defective classes: It is agreed by all that sterilization should never be advocated in doubtful cases or in the milder and more questionable forms of defectiveness, but it would seem to be admirably suited to cases of undoubted feeble-mindedness, whether the defect were manifested as criminality, imbecility, or some form of hereditary sexual perversion.

Let it be clearly understood that sterilization in no wise interfere with the normal biologic feelings and impulses of the individual. The self-supporting types of sterilized individuals could marry and live out their natural lives, while at the same time society could breathe more freely, knowing that no feeble-minded offspring would result from such marriages between the hereditarily defective.

There is no question that a sterilization law, enforced throughout the United States, would result, in less than one hundred years, in eliminating at least 90 per cent. of crime, insanity, feeble-mindedness, moronism, and abnormal sexuality, not to mention many other forms of defectiveness and degeneracy. Thus within a century, our asylums, prisons, and state hospitals would be largely emptied of their present victims of human woe and misery. The indigent and aged paupers, and the unfortunate degenerates of various types would disappear as a troublesome factor in civilized society.

In man's early history, primitive life was for the swift and the strong. The puberty rites which sent the youth far from the clan into the wilds for twenty-eight days were sorters of men. Natural selection's death rate of the jungle helped to purify the primitive race by destroying the weak and permitting only the strong to live and reproduce.

Eugenicists hope to arrive at the same result by the selective birth rate. If antisocial individuals are kept humanely segregated during their lifetime instead of being turned out after a few years of institutional life and allowed to marry, they will leave no descendants, and the number of congenital defectives in the community will be notably diminished. If the same policy is followed through succeeding generations, the number of those incapable of taking a useful part in society will steadily decrease.

If, while these reforms are being accomplished, the present definite tendency among the well-to-do and the more thrifty groups of the working classes toward race suicide can be successfully combatted; if these superior men and women can be imbued with the conviction that they owe a duty to the race, to the generations of the future, to leave behind them families of substantial size as guarantees that the noble legacies of mind and morals received from their ancestors shall be vouchsafed to their children's children down through the centuries—then there is assurance that this problem will be solved.

If America is to escape the doom of the nations of old, we must breed good Americans. The fall of every nation in history has been due to many causes, but always chief among them has been the decline of the national stock. Nations must change, but they need not of necessity die out. A quickened eugenic consciousness is one of the prerequisites to the working out of a successful racial program. "Better Babies" must become the watch word. Our religious and our moral codes must include the conscientious conviction that the race must be purified. Eugenics must be taught throughout our national educational system.

No civilization can endure in the presence of a continuous oversupply of inferior stocks, and its decline and overthrow becomes doubly sure and certain if, at the same time, there is an undersupply of the superior stocks—those stocks which carry the germ plasm of leadership, talent,



and ability. Some nations have risen rapidly in culture and efficiency and subsequently fallen with equal rapidity. Is the United States to be one of these?

In times of war, when our national safety is seriously threatened, we have not hesitated to conscript the ablebodies and clearheaded manhood of the nation—our very best stock—for an army of defense for the protection of our civilization and institutions. Would it not be equally fitting, since it is within our power, to conscript—literally to draft—this great horde of defective individuals who are not only a curse to the society of today, but who are also the carriers of degeneracy to future generations? Why not conscript these undesirables for the common weal, and then, after they are examined, studied, and classified, take such action as will not only be for their best good, but which will also be in the interests of the welfare of society as a whole, both today and for all time to come?

If we should thus conscript our degenerates, sanely classify and properly employ, incarcerate or sterilize them, within a very few years most of our charities, which are dealing largely with problems resulting from feeble-mindedness, would go out of business; most of our jails and brothels would be empty; our courts would languish for want of cases; and fully three-fourths of our philanthropic and reformatory work having to do with poverty, vice, intemperance, delinquency and crime would stop for want of the feeble-minded grist which today keeps these mills of charity grinding.

American conditions call for thoughtful consideration—for serious study. The problems of the hour challenge our immediate consideration. Our national life needs to be studied in the light of the rise and fall of other nations. We are but a young people, and now is the time, in our adolescence as it were, carefully to take stock, earnestly to inquire into and recognize our fundamental defects, and then with patriotic courage and stalwart bravery to consecrate our hands to the task and dedicate our minds to the cause of turning away the swelling tide of moral decadence and mental defectiveness before this dire threat of degeneracy shall have time to assume more serious proportions, and before the racial deterioration which now looms in the not far distant future shall have, to further degree, un-

dermined the stability and intellectual greatness of America and Americans.

The call now to the citizenship of our country is for the reading, thinking half to become students of the great problem of race betterment; to formulate their ideas, revise their opinions, reach sound conclusions, and then, in turn, to become teachers of the other, the unthinking and the careless half, which are driving on heedlessly toward racial decadence and national ruin.

The hour has come to sound the rallying cry for that part of our citizenship which is willing to look the facts in the face and then with intelligence and determination to lay the axe of prevention to the roots of the tree of tainted heredity, which is responsible for this increasing harvest of human unfitness, defectiveness, and degeneracy.

#### PUBLIC HEALTH EDUCATION\*

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"Give me a lever long enough  
And a prop strong enough  
I can single handed move the world."

—Archimedes.

A heavy burden rests upon the people; it is the pressure of premature death, sickness, and impaired health. The load is made heavier by apprehensions and superstitions—by-products of actual sickness and death. The pull of man's strivings is upward; but the load anchors him to the clod.

Yet the burden is not an inevitable one; it can at least be lightened to a fraction of its present weight. According to Louis I. Dublin, the lives of some 9,000 mothers could be saved annually were they to avail themselves of ordinary prenatal and maternity care. Thirty years ago, one baby out of four died during his first year; today, the ratio is one to fourteen and yet some 57,000 babies died unnecessarily last year in the United States. Think of the burden once imposed upon us by diphtheria! Which was more unbearable—the destruction of life or the anguish suffered by the mother and the doctor looking on helplessly while the child slowly strangled to death? Smallpox, rickets, typhoid fever, malaria, tuberculosis are "prevent-

\*Read before Joint Session Surgery, Medicine, Radiology, Public Health & Hygiene, Springfield, May 17, 1932.

able." Handicaps such as malnutrition, carious teeth, defective vision, and a large percentage of mental abnormalities need not be. The load *can* be lifted at this very time to a great extent.

Medical knowledge is the potential power that can lift it. Vast indeed is the store of medical knowledge today; no single mind can encompass it, but every doctor knows how to obtain and deliver the particular knowledge applicable to a specific problem. Not only does he apply it in diagnosis and treatment but he also gives of it freely to each of his patients. Indeed the title "doctor" properly translated means, not "healer," but "teacher." In a very real sense the doctor is the health tutor of the people. The knowledge, the reassurance he gives lifts many a burden.

But is that enough? Relatively few people derive the benefit of such individual tutelage, for the knowledge given seldom extends beyond the particular patient and his immediate need. Enormous quantities of life-saving information remain locked up like the wealth of an untapped mine. The problem of distributing this power to the innumerable units which compose society has challenged the initiative of many gifted with a social bent but lacking in medical training. How they have approached this task and how they are carrying it on is of pertinent interest to the practitioner.

The gravitational forces that make the burden of sickness heavy and keep it settled on man are mainly ignorance, tradition and indifference. Only a Samson can budge the inertia of the human mind—and Samsons are rare. It was a great day when pre-historic man discovered the lever, the multiplication table of applied energy. Today, our mechanistic mode of life would be impossible without it. By means of levers, any soft-muscle man or woman can direct and control the power of some 40 or 50 horses underneath the hood of the auto.

Public health education is the lever used to pry off the load of sickness. Modern business methods have taught us to respect the power of advertising. Create a cigarette, any kind of a cigarette, put it on the market with advertising, and presently millions of people demand that particular fag with childish eagerness. Stop advertising, and sales drop off to almost nothing. As the lever of advertising is manipulated, so the load of merchandise is moved. Our mission,

however, is not to unload unwanted or even desirable goods on people but rather to pry a burden loose from them; a much more enduring achievement.

Health education is a relatively recent development and the use of this lever is still somewhat crude. But by taking a leaf out of the book of the advertiser, another from that of the educator, the health publicist is making creditable progress. He soon learned that the successful advertiser lures buyers by playing up the happy, desirable features of his product, and that the educator emphasizes constructive, positive concepts rather than negative ones. And here the health educator struck a snag. How could he popularize a subject from which most normal-minded people shrink (and all disease menaces are of that nature). For example: What appeal is there about tuberculosis that can be called happy or alluring? None, except the prospect of escaping it and that is weak. Certain commercial commodities, it is true, face the same kind of "sales resistance"; fire prevention apparatus and life insurance, for example. Advertisers of such commodities do resort to the fear appeal but always they provide a way of escape. Am I, too, shunned by the charming debutantes because I have halitosis? Don't worry, a coupon on the corner of the page brings to me a sure remedy. Health educators have become fairly expert in sounding the cheerful note and in cultivating constructive action. These and other tricks they are rapidly learning and health education today competes with a multitude of commercial appeals.

Archimedes based his boast on two conditions; to have a lever long enough and a "prop" or fulcrum, strong enough. What is the fulcrum which we need for the efficient use of our lever? It is the possession by the people of sound, basic knowledge and the ability to think straight. Public health education, an adaptation of advertising, does not supply basic knowledge except to a very limited extent. As for causing people to think straight, I am afraid we must admit that much of our popular health education does not help people to think logically but prompts them rather to accept what the propagandist desires them to believe.

At this point, we pause to define our terms. By education in its pedagogic sense we mean to



"educt,"\* to coax out of a developing mind the latent intelligence which is there. Publicity or public education is the process of informing the people in general. It has to do primarily with the molding of public opinion. Education in its restricted sense is an intellect-developing process. Publicity is a laying-on process; a method of adding new facts to ideas already existing in other persons' minds.

Health publicity has accomplished much in the past, but its leverage power is still decidedly limited for want of a better "purchase" or grip. Health publicity is capable of conveying an uncomplicated truth that can be expressed in brief slogan form, or an appeal that can be put on an emotional basis, or a concept that can be condensed into a simple formula, but not much more. If the particular health idea we wish to introduce to the public is a bit complex, health publicity helps but little. For example, it seems very important that parents should understand that all tuberculosis is not "consumption" in the traditional sense. But how can we teach them to make distinctions unless they possess a working knowledge of physiology and hygiene? Once having learned that tuberculosis is characterized by cough, loss of weight, and fatigue, it is difficult for the non-medical person to form a mental picture of symptomless tuberculosis in children unless he has sufficient biological background to visualize the several steps in the development of the disease.

How is he, furthermore, going to distinguish between the advice of the quack and that of the scientific physician? Shall he trust the doctor who advises an operation for hemorrhoids, or the chiropractor who adroitly manhandles the backbone so that the vital juices may more freely flow? Is vaccination a safe protection against smallpox or is it the "injection of pus from a sick calf into a healthy child" as Elbert Hubbard put it.

To furnish a firmer fulcrum for the lever of health publicity, we must lay a more solid foundation than is possessed by most adults of this generation. Sound child education promises to do that for us. True, our methods of teaching are yet far from perfect but enormous strides have already been taken. Teachers are being better trained to teach health, and careful

study is being given to the content or subject matter of health teaching.

Health education of children may be justified for its immediate pragmatic value. If we can develop in children the habit of cleanliness, for example, we are achieving much. But that is not enough. To be sure, the approach to young children must be via the imagination, the play instinct, and the tendency toward habit formation; but at some period in the child's development, he begins to think thoughts of his own. Minds do not grow on jingles, slogans, and bastard nursery rhymes. That is why health educators are urging that children of older age be given the raw materials for mental growth and that they be taught how to use this material for practical purposes. During the high school period when a group consciousness begins to emerge, is the time to cultivate in the student an understanding of community health, which implies that he should be taught the fundamentals of physiology, bacteriology, and hygiene in general. Our colleges and universities particularly should strive to create an appreciation for sound medical and public health principles, for in these institutions are being trained the future leaders of public opinion—men and women whose judgment will be relied upon in many a crisis involving advancement in public health.

The health education movement has in the last few years gathered momentum. Has this new social force encroached on the established field of medical practice to the benefit or to the detriment of the medical profession? I ask the question rhetorically, hoping no one will volunteer to answer it flatly lest we be drawn into endless and useless debate. My personal opinion is that if the ledger could be balanced, we should find the "benefit" side heavily outweighing the "detriment" side. But however health education may affect the doctor's welfare is not the pertinent point, for tradition has stamped us as willing servants of the common good regardless of personal interests. Medicine is not a craft existing for the enrichment, financial or intellectual, of its practitioners, but it is a type of service demanded by the people.

Fortunately the profession thoroughly believes in health education—of the proper sort. It would not be honest, however, to say that (excluding a few notable exceptions) the profession as an organization has given leadership

\**Educe*—to lead forth (as a shepherd leads his sheep).

to it. Doctors have furnished most of the inspiration and have given generous support to our popular health movement, but this has come mostly from doctors as individuals and not from the organized group. Doctors, however, individually and as a group, do have an important stake in this newer development of medicine designated as health education. They are concerned both with the lever or health propaganda, and with the fulcrum or the formal teaching of health. What should be the attitude of the organized profession toward health education?

Only the group can answer. But may I be permitted to suggest certain lines of thought and raise certain questions for discussion.

Should health education be regarded as a branch of medicine and, therefore, practiced and directly supervised by legally qualified physicians? With regard to the formal teaching of health in schools, the question seems already to be settled. It is generally accepted that school health teaching is primarily a matter of pedagogy. The substance or content of the teaching must be derived from, and authenticated by, the physician, but the final selection of content and the real job of teaching belongs, by common consent, to the teacher. Following the early "Modern Health Crusade" method of teaching school children, an attempt was made to systematize or formulate the principles of healthful living for children and to introduce such training in the regular school curriculum. This effort marks the beginning of the now widespread scheme of school health education. The basis of the plan introduced in 1924 was a report on health education drafted by a joint Committee of the National Education Association and the American Medical Association. This report, revised in 1930, is still the "Bible" of the school health educator. *The principle of partnership* between the medical and teaching professions in determining what should be taught the child and how, is thus established.

Health publicity or adult health education or health propaganda (call it what you will) has to do mostly with adults in the mass. Is it the function of the medical profession to direct or control that important branch of health education? My tentative, and by no means unequivocal, answer would be "no." In the first place, doctors are not trained or equipped to undertake that task. The doctor is practiced in the tech-

nique of making individual diagnoses. He specializes in the study of the biological deviations from the normal in individual persons. He particularizes and concentrates, as with a funnel, all the knowledge and experience he may possess on a single person's problem. Health education, on the other hand, demands a type of mind that envisages vast numbers of people. The health educator starts with a single, concrete idea and attempts to deliver it to the masses; he, too, uses a funnel but he reverses it and makes a trumpet of it. These two types of personality and training are strange bedfellows indeed, and rare is the individual who combines both types in one mind.

Neither of these exponents of two professions, medicine and mass education, can alone wield the lever of popular health education successfully. Their viewpoints, traditions and tastes are often at opposite poles. The mass educator (at least in his unregenerate state) leans toward the dramatic if not the spectacular, and measures his success by the volume of echoes he is able to raise. The doctor (still laboring under his professional inhibitions) jealously nurses or even conceals his truth until he is sure it can do nobody harm. Yet both of these trends must be blended if sound medical knowledge is to be delivered to the largest number of people. It appears to me that only by combining forces will health education best succeed.

To the medically trained man we look for guidance as to the content of the health message. He must determine precisely what should be broadcast. Out of a mass of facts and data accessible to the doctor, he must select only those that are pertinent. He must determine for us what the public should, and should not know. Out of the tomes on cancer, for example, he must cull those three or four basic concepts, which the layman should know and can grasp. With fine discrimination he must determine whether the publication of certain facts will stir up more hysteria than it will prevent pathology. To have tuberculosis in the lungs and not be aware of it is a misfortune; to carry the spectre of it in one's head is a calamity. For this meticulous job of selecting what the public should know the doctor may need the counsel of the educator and psychologist but for the factual basis, the physician alone is responsible.

The publicist, on the other hand, must be



master of the subtle principles of broadcasting knowledge. His specialty is an understanding of how the mass mind reacts and he must know how to launch ideas along the channels that reach people's minds. He is content to accept without question the facts which the medical man selects but reserves the privilege of so phrasing them that they will be palatable to popular taste. If castor oil is what the people happen to need he will not attempt to substitute something sweeter but will invent a suitable capsule or lozenge for it. In his contact with the physician, the publicist gradually catches the doctor's viewpoint and the doctor in turn becomes more appreciative of the art and necessity of mass education.

For these reasons, I submit that the burden of health education is one to be shared by the doctor and the layman skilled in mass instruction, just as school health education is jointly assumed by physician and educator.

*Partnership is the keynote.* Here and there medical associations have launched an independent, popular health education program. Some reach the people by conducting daily columns of information in the newspaper, some by maintaining a speakers' bureau, and a few through paid advertising. These efforts are meeting with varying success. But there are difficulties connected with such enterprises. Advertising in general has created the prejudice that the advertiser has something to sell which will profit him more than the buyer. There is perhaps no better formula of health for the layman than that he should cast his burden upon the doctor. He should learn to rely upon the doctor, not only for advice in time of sickness, but also for guidance in keeping well. Any effort that is made, therefore, to create an appreciation of scientific medicine and to help people to distinguish between real medicine and cultism is to be commended. Yet because such excellent health education emanates from the group that has, so to speak, a vested interest in medicine, its value is seriously discounted. No one can criticize a medical society for encouraging such publicity but when that society becomes the spokesman for health in a community, it must be ready to encounter the suspicion that its purpose is to create business for the doctor. That is unfortunate but such is the tenor of this commercial age. For that reason, the health department or

the volunteer health association is often in a better position to command the ear of the public for they, theoretically at least, speak for no special interest but the welfare of the public. Again it would seem that *partnership is the best solution.*

Assuming that for the common and maximum good the medical profession is willing to share partnership in the great enterprise of modern health education, how best can the profession function? Is it not *by participating* actively in all so-called lay health movements? Incidentally it is very unfortunate, I think, that the designation "lay health work" has been coined. The implication is that "lay workers" are outsiders, not of the fold, interlopers in the field of medicine. The promotion of health, as Disraeli said, is the first duty of the state. In a democracy the people have a right to plan the kind of health program and to organize the kind of health machinery they desire, whether for better or for worse. In a democracy medical men are the expert technicians in this scheme. They are looked to for guidance, but it is not for them solely to determine policies and practices. Medicine is not a priesthood but a service. That being the case it seems to me that as a profession we should cast our lot with the body politic and consider ourselves part and parcel of the community (though with special qualifications to advise) and as such, we should participate in, but not dominate, public health education. It is through the health departments and the health associations that the medical profession can most powerfully exercise its influence for truth and sanity and progress.

I am not unaware of an unfortunate error sometimes committed by health associations, and that is, the tendency to organize and set up the machinery and when that has been done to call upon the medical profession to help. That makes of the doctor a rubber stamp or at best a follower. The doctor should come into these social enterprises "on the ground floor" in the very beginning and as a specially qualified participant he should be ever alert to take the initiative and to give guidance, scorning not to play the game with those whose approach to the problem has been by way of some avenue other than medicine. Accept the principle that health education is the monopoly neither of the doctor nor of the social

zealot, but an instrument of democracy and this difficulty will dissolve.

For the soundness of these principles, I am not yet ready to go to the stake. There has been all too little cool and candid discussion of them to be sure of our ground. But of one thing in this field of health education, I am certain, and that is that education of the members of the medical profession themselves is clearly the obligation of organized medicine. Here is a health education problem within our gates, in fact on our very doorstep crying loudly for adoption. As the people become more and more aware of what medicine has to offer them, as they become more critical and discerning, increasing demands are made of the family doctor. Knowing that there is a method of preventing diphtheria our patients are demanding that protection from us. We must be able to deliver the goods. The idea of a periodic health examination has commended itself to many thinking people. They now have a fair notion of what such an examination should comprise and they pass cold judgment on the doctor who does not deliver the service of a high standard. Mothers have learned the value of diphtheria immunization, the significance of the tuberculin test, the need of a proper dietary. The doctor is obliged to meet this demand and unless he keeps briskly in step with medical progress his patients' demands soon outstrip his ability to supply. What could be more embarrassing? To keep always one jump ahead of the public, eternal study is necessary. The job of health education of the profession itself is a sizable one, and only the profession as an organization can do it.

In summary we may say that:

1. Medical knowledge, properly delivered to the people is capable of lightening a vast burden resting upon the people.
2. Health publicity must be reenforced or preceded by sound health education in its pedagogic sense.
3. Health education and health publicity represent an instrument of democracy and as such should be of the people, by the people and for the people.
4. The medical profession is peculiarly qualified to give direction and to furnish technical advice in health education and publicity.
5. The medical profession can exercise its duty and privilege best by participating with

the democratic agencies known as health departments and health associations.

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## PATHOLOGIC SOLICITUDE

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Dealing as he does with human beings and human weakness, the doctor meets enough avoidable and petty irritations in his daily work to weary him—at times to the extent of deadening whatever leaven of human kindness he may have towards his fellowman. If he becomes cynical, there is a reason. Confronted with medical responsibilities, nearly always serious, and often grave; endeavoring to sincerely live up to the Hippocratic oath; using every known resource to save life and prevent disease to the best of his ability; worrying how to make both ends meet and yet keep up his professional prestige, he is too often beset with unnecessary vexations extraneous to his actual medical practice and professional relations to his patients. By "extraneous" is here meant all the kin of the patient, but the "vexations" refer only to some of them. It also includes the blind egotism of certain lay relatives who invade the province of the doctor, discussing medical men and medical matters: make diagnosis, and with smug satisfaction flaunt an assumed medical knowledge in no way justified by education or special training. But then, it is one of the average layman's conceits to dabble in the treatment of disease, where he would confess ignorance of any other form of professional practice.

The doctor attempts to exhibit as much tact and kindly tolerance as the patient's case necessitates. Experience makes him aware of the human factor in the patient. He conscientiously tries to treat his patient as an individual, and not a disease, giving that necessary personal "human touch" to the sickroom situation. The value of the proper rapport between himself and the patient as a part in the success of treatment is not underestimated by the wise doctor, because he realizes that the character of the patient is nearly as important as the character of the pulse.

In most instances, the physician's service and counsel is accepted by the patient submissively,



and when not otherwise influenced, gratefully as well. Almost every patient has the will to get well. Complete reliance in the physician's medical skill gives the patient more confidence, encourages rapid recovery and of course adds a modicum of whatever joy there may be in the daily life and work of the doctor.

Nearly every sick person becomes more or less panicky, and the astute physician attempts to avert alarming the patient and gives every cheery assurance to allay uneasiness and groundless fears usually engendered by illness. Appealing to the reason of the reasonable and playing on the feelings of the emotional ones makes most patients amenable to the methods of the medical adviser. The substance of the relationship between doctor and patient is the abiding faith of the patient in the doctor, and the doctor in himself. This is psychotherapy plus.

To a certain extent, the doctor expects to be quizzed by his patient. It is excusable that a sick person of any intelligence should wish to know the nature of the disease and how long it will last. Circumstances determine what the doctor may do in any given case. Occasionally, the physician is unduly taxed by an anxious and unreasonable sufferer, but learning that forbearance helps make a successful practice, the doctor governs his temper and meets the situation without any outward show of resentment. A part of good treatment is not to let the over-anxious and nervous sufferer ruffle him, and as long as the physician is left free to dominate the patient and the issue is successful, well, then, the end justifies all the vexations endured. Anyway, the doctor tries bravely to forget his own feelings so as to exercise whatever art and kindness he can, that his sick charge get well at the earliest moment. What the physician may think to himself is something else again. Perhaps it would be perfect retribution to add so much per annoyance on the bill. Of course, I am not trying to make an angel of every doctor. Underneath the professional veneer is a section of human nature and all that goes with it. The question of bread and butter for the doctor brings the necessary restraints and discretion.

Howbeit, it is such unnecessary tribulations and mental wear that help impair the efficiency and help shorten the usefulness, if not the life, of the hapless doctors. They sigh and wearily accept it as a part of professional routine. No resound-

ing "hurrahs" or flag-waving for this sort of daily martyrdom. If that were all there was to the practice of medicine, most physicians would gladly accept their lot with as much pleasure as a trying profession allows. If it were merely a matter between patient and doctor it really would be tolerable.

But there is a fly in the ointment. Practically every patient has relatives. These people, whether they be related to the invalid by blood or affinity, constitute a condition in the practice of medicine that may not be ignored by the physician if he desires economic survival and success. How an "entente cordiale" may be established between doctor and the relatives must necessarily depend upon the strength of character and the extent of experience of the doctor and the personality types of the kinfolk.

There are all sorts and conditions of relatives—parents, brothers, sisters, uncles, aunts, not to mention a host of cousins of both sexes to remote degrees of consanguinity. Most of them appear on the scene of sickness more or less perturbed but with good intentions. I mean that most relatives are really anxious to know the gravity of the situation and lend what aid possible; that is, show a normal solicitude. In their relations with the doctors, the relatives generally come unadorned, betraying human nature in all its phases. Mental characteristics of relatives differ markedly. Some are reasonable; some indifferent; some polite and deferential, while others again are sensitive, excitable and even aggressive. Some co-operate readily with the doctor, while others go along without much comment. Then there are the very temperamental—"more temper than mental."

Generally, the physician is willing to humor any well-intentioned medical opinions on the part of lay relatives. Books on "medicology for the home" or almanacs containing some medical information are often the source of these opinions. In his contact with relatives of his patients, the doctor usually knows it is good policy and that it pays to treat them with attentive cordiality. That such amicable relationship may sometimes sour depends, of course, on the patience of the doctor and the obnoxious medical wisdom of the relatives.

It is human to worry in the face of some distressful situation, especially in the case of sickness. Normal minded relatives gather such

crumbs of hope and comfort as the doctor may offer in a given case, for they usually know that he is not infallible and that there are still limitations to the art and science of healing.

There exists, however, a fortunately small number of relatives who are suffering from what has been so aptly designated as "pathologic solicitude," a neatly coined phrase that must have been inspired by pure vexation of spirit. Credit is due Dr. A. Iberler of Pittsburgh for this excellent contribution to medical nomenclature. Very expressive and decidedly useful, "pathologic solicitude" literally means morbid anxiety suffered by relatives who are nervous and sometimes have mental instability. Distracted and exasperated physicians have known of this condition for a long time, but by other labels, usually pronounced under the breath; appellations not generally allowed to be printed even in medical literature. Hitherto it was thought that members of this ilk were a necessary evil, incident to the practice of medicine, but Dr. Iberler, by his brilliant suggestion, put a different aspect on the matter. He makes a malady of "pathologic solicitude" and thus saves many a doctor's soul from the wrong place in the hereafter. It is not to be supposed that the poor and illiterate alone suffer from this; on the contrary, the rich and cultured are at times as badly afflicted.

Women seem to suffer more from this condition than do men. This is due perhaps to the fact that all women have more or less of the mothering instinct. Some suffer it because others of their kin told them that they had a talent for nursing. A vain, neurotic woman, plus a little fulsome praise, surely makes "a little learning a dangerous thing."

Typical members of the "pathologic solicitude" clan show undue anxiety, are inclined to exaggerate conditions, ask innumerable and at times stupid questions, irk the doctor and the nurses by constant trivialities, and in hospital wards even go so far as to make allusions of disapproval to relatives of other patients within hearing. Disregarding all rules of courtesy and convenience, persons with the "pathologic solicitude" complex pester and provoke the doctor with all sorts of fancied grievances. And the phone calls! Numbers of them—to the hospital and to the doctor at his home. They are usually of interminable length, always consisting of the same

disputes, criticisms and suggestions. On some flimsy pretext, nurses are called away from important duties and necessary attentions to the patient to answer some non-essential inquiry over the phone.

In the freer definition of "pathologic solicitude," medical meddling by over-anxious relatives is included. Seemingly, no amount of applied psychology can manage those addicted to medical meddling. All the doctor can do is to dissemble his true feelings towards these meddlers and keep the even tenor of his way.

In spite of strict orders to the contrary, the neurotic kin loiter around and somehow contrive to visit the patient. Sometimes they come in formidable mass formation or singly. Always among them is one who dominates the situation and who is especially imperious. Then comes intrusion and tampering with the medical work in general, and the patient in particular. Members of the family feel it their duty to change the bed—"to make the patient more comfortable"; request the privilege of bathing or massaging the patient; scrutinize the daily medical chart; chatter with the nurses as to the doctor's virtues, moral or otherwise; inspect the food served to the patient; time the nurse's answer to the bell, hoping she is late in answering, and overstay the limits of visiting hours, to the discomfort of the modest bedridden invalid, who would rather suffer in silence than respond to the call of nature in the presence of another. They are constantly on the alert to find some defection. More instances may be piled up, but what is the use! Reasoning with such relatives is usually fruitless. Rebuke only creates more friction. Apparently no amount of psychological magic is effective. Of course, the first duty of the doctor is towards his patient and to scorn all else, but an important point is that some of these undesirable relatives pay the bills, and that necessarily makes the doctor reflect. It is hard to stand on professional dignity in the face of such a contingency. Only too often must the physician swallow affronts from some individuals for the sake of a livelihood. Discretion brings a bigger bank balance than valor.

So far, the discussion has been limited to the relatives of patients who are physically ill, but mentally normal.

Where "pathologic solicitude" is most obvious is in the cases of mental diseases and in the



sanitariums devoted to the care and treatment of the insane. Whereas in ordinary cases of sickness some control can be exercised over lay meddling with patients, in mental work the kin-folk are often obstinate. If it is merely annoyance where the internist, obstetrician or surgeon is concerned, it is veritable harrassment to the psychiatrist.

Strangely enough, relatives will accept, submissively, any kind of diagnosis but that of insanity. They will admit the possibility of any mysterious ailment, but mind sickness—never! It is the common experience of almost every alienist that in some instances the intimation of insanity is met with indignant denial on the part of the hysterical kin of a mental patient, who state emphatically, without reservations, that the psychiatrist is in gross error and, since there never was such condition or stigma in the patient's family heretofore, therefore, it could not be insanity. "Why, the idea! The patient is merely suffering from 'nervous breakdown.'" Blessed euphemism, that "nervous breakdown." It lulls the touchy and rather defiant relative and saves the patient for the wise psychiatrist.

"Pathologic solicitude" sometimes goes to ridiculous lengths. For instance, the psychiatrist is solemnly instructed by morbidly anxious relatives not to let their patient mingle with the other mental patients in the sanitarium, lest he become insane when he begins to realize the nature of the illness suffered by the other inmates around him!

The greatest contention with over-anxious relatives is in the matter of the proper time to visit mental patients. Psychiatric experience makes the handling of the mentally sick comparatively easy. Away from certain members of the family and other disturbing influences, most mental patients do well in sanitariums. A sanitarium is often a sanctuary for patients as a protection against over-zealous and highly solicitous relatives. Patients suffering from emotional upsets generally do better away from home or their customary environment. Restricting visiting of patients for a time or for such space as will give them a chance to make the necessary readjustments is generally beneficial. Yet such requests to the relatives are too often ignored. It happens that shortly after the admission of a patient, some relative is sure to in-

trude, to the detriment of whatever gain is made in the treatment. Some emotionally volatile relatives, when they visit, regularly go through a crying scene in the presence of the patient. The effect on a mental patient may be easily imagined, especially when there is an approach towards improvement.

When the time is ripe, visiting mental patients is encouraged and often proves a remedial measure. On the other hand, over-solicitous relatives simply will not understand that at times visiting a mental patient may be harmful. It is occasionally futile to explain that some of the influences which cause the original mental upset is brought to the patient by ill-timed visits of too-familiar visitors. They become indignant and not infrequently state that relatives also have their rights. They naively say that they cannot see how they hurt a patient by a visit. That the patient does not appreciate the visitor or the visit does not impress the relative. Too, it is claimed that the patient will surely feel happier when they are around, in spite of the fact that the patient is indifferent to their presence or may be even hostile in his feelings towards any visitors. But then, these strongly opinionated relatives seem to have some sort of occult powers and know more about such matters than do those experienced in mental diseases. A few minutes of a disturbing visit may unduly excite a mental patient for several days following, thus delaying improvement and putting that much more burden on the attaches of the sanitarium.

"How often is the patient bathed?" "Why does the patient tear his or her clothes?" "Why isn't the patient better?" "Don't you think the patient will go crazy among crazy patients?" "Is he eating enough?" "Why can't the patient have more freedom?" "May we try the patient at home?" are a few of the more familiar and insistent questions that the tormenting relatives ask the doctors and attendants. Ever the same elucidation and ever the same queries. One may readily see why the doctor in charge isolates himself as a matter of self-protection.

A volume could be written on all the stuff that is brought to the patients by the relatives. Take the matter of food, for instance. Generally, right food in generous quantities is served to fit the needs of the patients in well-managed sanitariums. Irrespective of the requests to the

contrary, over-indulgent relatives openly or furtively bring loads of fruits, candies, home-cooked delicacies, and what not. They sometimes hover over the patient urging the eating of the food brought. Most mental patients will eat at all times and almost everything from nails to mattresses. Extra food, outside of regular meals, is rarely needed by the patient. Under the circumstances, it can readily be seen that digestive upsets are not infrequent, and this sometimes delays recovery or brings on a chain of physical ills. And then, these trouble-making relatives fatuously believe that they are helping the patient and fooling the doctor!

Once in a while the "pathologic solicitude" clan are divided and squabble among themselves, making an interesting, if not an amusing, situation. Then the doctor may play both sides against the middle and earn a peaceful interlude between. At this point we must not forget the relative who has knowledge of similar cases and the successful issue at the hands of other doctors.

It has been said that the best way to get some mental patients well is to treat the morbidly anxious relatives first. And this is not meant to be funny. Be that as it may, it is a sad fact that the over-emotionalized kin of patients create a good deal of distress by unnecessary curiosity or impertinent interference in the professional care of the patient, no matter how well-meaning it may be. Perhaps we should be more sympathetic towards those unfortunates afflicted with "pathologic solicitude," but such a kindly feeling is at times lost or of no value, for some of these unfortunates are so obsessed with their morbid anxiety that they wear down the physician by sheer attrition and it is often the harassed doctor who really needs the sympathy.

If the condition that we are now pleased to call "pathologic solicitude" is a disease, then by all means let us find a remedy for it and, if possible, an effective preventive. If, however, the condition is a nuisance, a tampering, mischief-making nuisance, then let us find some kindly but effective way of putting these meddling neurotics in the desirable state of "innocuous desuetude." Thus will some patients get well sooner, and thus some doctors, especially psychiatrists, be saved from early demise for better service and the greater glory of medicine. I know that I have the normal-minded relative with me, for they, too, are often annoyed by

their over-anxious kinfolk. No offense is intended in what has been said. This is a true description of certain conditions that need correcting for the sake of the patients and benefit of the medical attendants. This is a plea to leave the patient to the better judgment and tender mercies of the doctor and let all other things be merely relative.

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## CALCIUM IN OBSTETRICS AND GYNECOLOGY

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The study of the chemistry of calcium in the body in pregnancy has received in recent years the attention which it deserves. There are many alterations in the serum calcium of the mother during pregnancy, and these, as stated by Stewart and Percival<sup>1</sup> are "doubtless due to the drain on the maternal tissues to meet the growing demands of the fetus, a demand which increases, according to Bosworth, Bowditch and Giblin from 0.006 Gm. per day during the first four months of gestation to over 0.6 Gm. per day at term, and may average, according to Givens and Macey, 0.1 Gm. over the whole period." Whatever the explanation, one fact is fairly well established: the serum calcium of the mother falls during the last months of pregnancy. According to Cantarow,<sup>2</sup> during the course of normal pregnancy and early labor there is a gradual diminution of total serum calcium, a slight increase in diffusible calcium and a marked decrease in non-diffusible calcium. As a result of these changes the ratio of diffusible to non-diffusible calcium increases rapidly, reaching a maximum in the first stage of labor. These variations are probably to be explained by a variation in the functions of the ductless glands, particularly the parathyroids. This explains why a tetany previously latent becomes evident during pregnancy; for, as Falta<sup>3</sup> has remarked, pregnancy makes increased demands on the parathyroids, unmasking a latent insufficiency, when one exists.

Coons and Blunt,<sup>4</sup> Goss and Schmidt<sup>5</sup> have shown that there is a retention of calcium and phosphorus by the maternal organism during this period. As Cantarow remarks, the amount of retained calcium is more than can be accounted for by fetal utilization and, perhaps,



represents the establishment of a reserve supply which may be called upon during subsequent emergencies. This storage of calcium is particularly marked in the last months of pregnancy.

During the period of milk production, Forbes, Hart, Miller<sup>6</sup> have shown in animals that there is a negative calcium balance, due not only to the large quantities present in the milk, but also to an increased excretion. Hunscher<sup>7</sup> has shown the same thing to exist in women. She found a negative balance in early lactation in spite of a high calcium intake.

These alterations in mineral metabolism have probably a great importance as regards the production of osteomalacia, tetany and eclampsia during pregnancy and lactation, the frequency of which, as Trumper<sup>8</sup> remarks, is well known. Hence the advantage of trying to raise the calcium balance by the administration of a suitable calcium salt, such as calcium gluconate (Sandoz\*) which seems to be readily absorbed and is undoubtedly more pleasant to take than the chloride or lactate. Calcium gluconate should be administered as a regular part of the dietary in doses of one to two tablets of 1.5 Gm. two or three times daily, in the latter part of pregnancy and especially during lactation when the calcium drain is still greater.

The preceding lines explain why calcium ought to be liberally administered during pregnancy as a preventive of complications. But calcium has not only this preventive role; it can also play a curative part when disturbances such as eclampsia have developed. Minot and Cutler<sup>9</sup> have found that very promptly (within 1 or 2 hours) after administration of a 10 cc. ampule of calcium gluconate solution the blood sugar level, low in eclampsia, is raised to normal and there is a general amelioration of symptoms. They have seen a particularly remarkable case of eclampsia in which the patient became suddenly blind, had convulsions and was nearly unconscious, in which the vision was much improved 15 minutes after the injection of calcium gluconate, and normal after 40 minutes, while the patient became rational. The experience was repeated a second time.

Rodecurt<sup>10</sup> has treated 161 cases of hyperemesis gravidarum, pre-eclampsia and eclampsia with calcium gluconate. Twenty-four hours after intramuscular injection of a 10 cc. ampule

the blood calcium is still markedly raised. As the tissues gradually take up the calcium, injections must be repeated daily, or every other day. Incidentally, Rodecurt has found that the calcium used to prevent hyperemesis gravidarum has also a favorable influence on the dermatoses of pregnancy.

Frank<sup>11</sup> has observed the value of calcium as an adjuvant in "Premenstrual tension." He has also seen that climacteric symptoms whether due to the natural evolution or to operative removal, are also influenced by calcium treatment in high doses, as effectively at least as by administration of female hormone.

Along another line of thought calcium is a valuable remedy against obstetrical and gynecological hemorrhages. Bardenheuer<sup>12</sup> has used intramuscular injections of calcium gluconate for one to several hours before labor, in 57 cases. The average loss of blood was only 180 Gm. instead of 280, usual average in women not treated that way. In 21 women who also received calcium but had to submit to an obstetrical operation (version, cesarean section, forceps, manual delivery) the loss of blood averaged 500 Gm., but that is considerably less than the usual average in such interventions. Bardenheuer insists on the advantage of calcium gluconate in such cases, because it can be injected intramuscularly. Intravenous calcium injections have an influence that wanes too rapidly. Oral administration may sometimes be ineffective. Bardenheuer concludes that calcium gluconate reduces the amount of hemorrhage by one-third on the average; it is to be advised to all women whose antecedent history shows a tendency to hemorrhage.

Zalewski<sup>13</sup> also has treated hemorrhages with calcium, but these were not obstetrical hemorrhages, but due to inflammatory conditions. He has treated successfully with calcium gluconate menorrhagias of the puberty, hemorrhages of the climacteric, uterine sclerosis and vascular hypertension: endometritis and vicarious menstrual bleeding and chronic uterine discharges. He advises the use of calcium in the postpartum and postabortion oozing to reduce the frequency of curettage which is so often used indiscriminately. He insists on the point that in many of the chronic discharges of women, a most common and distressing condition, there is a consti-

\*See New and Nonofficial Remedies, 1931, p. 112.

tutional element which is favorably influenced by calcium, a moderator of secretion.

Another group of indications gives good results from the use of calcium, namely, gynecological infections, particularly those of the adnexa. The first work published on this question was by Zalewski (loc. cit.). Calcium is indicated in acute and subacute adnexal infections, especially those accompanied by bleeding. It lessens exudates and favors phagocytosis. It does not interfere with natural defensive processes and does not have the accelerating influence on cell activity which makes foreign protein therapy inadvisable in the acute stage.

Herrold<sup>14</sup> was the first author in America to report on the use of calcium in gynecological conditions. Calcium gluconate should be used in acute salpingitis. Three cases with acute salpingitis were treated successfully with calcium intravenously and orally. Two of these were typical cases with temperature between 101° and 102° F. Four patients with beginning tubal infection and moderate pain over one or both tubes were treated successfully with calcium intravenously and orally and no further prodromal symptoms of acute salpingitis appeared. Herrold uses now the calcium treatment as a routine whenever there are premonitory symptoms of acute salpingitis. He states that if calcium gluconate were more generally used in acute salpingitis it is likely that fewer cases would require operation.

Boesken<sup>15</sup> declares that the ordinary rest and heat treatment of acute salpingitis is insufficient. He has used the calcium treatment which tends to influence directly the chemism of the inflammation. Inflamed tissues are comparatively calcium deficient, they are acidotic and show increased permeability; calcium corrects all those conditions. Boesken has applied calcium treatment to numerous acute and chronic cases of inflammation of the adnexa. In the more chronic cases the results are not essentially different from those of the conservative treatment. But, in acute cases, especially the early ones, calcium treatment gives brilliant results. A complete cure is seen in two-thirds of the cases, and marked improvement in the other third. The first injection brings about a fall in temperature and a relief of pain. The treatment brings

the resorption of very large inflammatory exudates. The author uses Calcium Gluconate (Sandoz), two injections of 10 cc. a day, one intravenous, one intramuscular. He relates several cases and declares that calcium gluconate treatment will save many women from the necessity of a radical operation.

The latest article on this question of calcium in genital female infections is that of Cartia<sup>16</sup> on "The Treatment of Gonorrhea and its Complications with Calcium." The author, among other cases, has treated some of acute adnexitis. From 5 to 10 cc. calcium gluconate solution were administered intravenously either daily or every other day and the number of injections varied from 5 to 10. No other treatment was given. Prompt and excellent results were obtained in bilateral adnexitis secondary to specific endocervicitis (reduction in size of tumefied mass and lessening of pain). When cystitis was concomitant there was noted a remarkable relief from dysuria and vesical tenesmus and a reduction of the polyuria. Calcium gluconate is preferable to vaccine and foreign protein therapy because it causes no untoward local or general reaction.

As a conclusion we think we can say that calcium has shown itself of distinct value in obstetric and gynecological practice, in which many disturbances are due to an irregular calcium metabolism. Calcium medication quite often makes up the deficiency and corrects the condition.

#### REFERENCES

1. Stewart & Percival: *Physiol. Rev.*, 1929, 8:289.  
*Biochem. Jour.*, 1927, 21:301.
2. Cantarow, A.: *Calcium Metabolism & Calcium Therapy*. Lea and Febiger, Philadelphia, Pa., 1931.
3. Falta, W.: *The Ductless Glandular Diseases*, 1916, Ed. 2. Blakiston, Philadelphia.
4. Coons and Blunt: *Jour. Biol. Chem.*, 1930, 86:1.
5. Goss & Schmidt: *Jour. Biol. Chem.*, 1930, 86:417.
6. Miller, H. G.: *Jour. Biol. Chem.*, 1926, 67:71.
7. Hunscher, H. A.: *Jour. Biol. Chem.*, 1930, 86:137.
8. Trumper, M.: *Fundamental Biochemical Factors in Pregnancy*. *Amer. J. Obstet. & Gyn.*, Vol. XX, p. 209, Aug., 1930.
9. Minot & Cutler: *Proc. Soc. Exper. Biol. & Med.*, 607-611, 1929.
10. Rodecurt: *Med. Klin.*, 1928, No. 29.
11. Frank: *J. A. M. A.*, Dec. 19, 1931, p. 1852.
12. Bardenheuer: *Zentralbl. f. Gyn.*, No. 29, 1929.
13. Zalewski: *Praxis*, Dec. 10-24, 1929.
14. Herrold: *Venereal Disease Inform.*, Vol. XI, No. 2, Feb. 20, 1930.
15. Boesken: *Zentralbl. f. Gyn.*, No. 12, 1930.
16. Cartia: *Rif. Med.*, 1931, XLVII, p. 1892.

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## THE X-RAY DIAGNOSIS OF CHRONIC APPENDICITIS\*

(BARIUM-MAGNESIUM-SULPHATE METHOD)

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Roentgenology offers a valuable aid in the diagnosis of chronic appendicitis. Time will not permit a complete discussion of this important subject, hence only a few of the more interesting radiologic findings will be considered.

The success of the roentgen examination depends largely on whether or not the appendix is visualized and the efforts made to visualize it. If, following an opaque meal, the appendix is not visualized by roentgenologic methods, is it normal or is it pathologic? This question is frequently discussed by roentgenologists and there is no general agreement as to the significance of an x-ray non-visualized appendix. Many claim that the failure of the appendix to become visualized is without significance, that a non-visualized appendix may or may not be pathologic and that the same statement also applies to the visualized appendix. In other words, the mere presence or absence of the appendicular shadow on the roentgenogram is not the basis of making a diagnosis of appendicitis. On the other hand, there are not a few roentgenologists who believe that the failure of the appendix to visualize is a symptom of pathology. In view of the general disagreement as to the significance of the non-visualized appendix, it is interesting to know the teachings of the Holznecht School of Vienna, representing as it does the views of one of the leading and most progressive roentgenologic teaching institutes.

*Czepa Technic.* The Holznecht School claims that over 90 per cent. of normal appendices can be visualized by the x-ray method and the repeated failure of the appendix to visualize is a sign of pathology, but the examination must be made with the special technic of Czepa. The essential feature of the technic is to maintain a fluid opaque medium in the cecum and ascending colon which will cause sufficient retroperistalsis to permit the filling of the appendix. The basis of the examination is the use of magnesium

sulphate and the following is the technic of its use:

The patient reports to the laboratory in the morning (about 8:00 A. M.) and is given 60 to 70 grams of pure barium sulphate dissolved in  $\frac{1}{4}$  liter of water, to which is added three teaspoonsful of magnesium sulphate. Late in the afternoon the patient is examined fluoroscopically and if the appendix is not visualized, is given additional water and barium as above but without the magnesium sulphate. The following morning the patient is again observed with the fluoroscope and if the appendix is not visualized the barium-magnesium sulphate mixture is again repeated. That afternoon, if the appendix has not been visualized, the second administration of barium-water mixture is again repeated. On the third morning and afternoon, additional fluoroscopic examinations are made, and if these too fail to visualize the organ, it is considered definitely pathologic, the lumen being narrowed or obliterated by inflammation. It will be noted that with the above technic, five negative roentgenoscopic observations are necessary before calling the appendix pathologic.

It is necessary that the patient be freely turned and the cecal region carefully palpated during fluoroscopy in order to reveal a partially hidden appendix. Unless one is unusually skillful in fluoroscopic observation it is also desirable that films be made of the appendicular region for it is a well known fact that small appendicular shadows may be overlooked by fluoroscopy.

The magnesium sulphate should produce a mild diarrhea. If this does not occur, the dose must be increased, while on the other hand, if too frequent bowel movements occur, it should be reduced.

*Holznecht School Teachings.* The impression should not be gained that the Holznecht School teaches that all appendices that are visualized following the above technic are normal. Other findings may be present that will condemn the organ. The appendix to be normal must be completely filled (segmentation is normal and represents haustrations), present a rounded tip to be free from localized tenderness. If the free end of the appendix is immobile, or it is kinked, it speaks for adhesions, although an accurate diagnosis of appendicular adhesions is frequently a difficult one to make. It should be remembered also, that the appendix may only

\*Read before the Section of Radiology, at the Eighty-second Annual Meeting of the Illinois State Medical Society, Springfield, Ill., May 18, 1932.

be visualized after the cecum is empty and that a retro-cecal appendix is not necessarily pathologic. It is important that efforts be made to move the terminal ileum, cecum and ascending colon for the appendix may be buried in the shadows of these parts and only be visualized by careful repeated fluoroscopic observations.

If the appendix is incompletely filled with only about one centimeter containing barium and the barium shadow ends abruptly (without the normal rounded appearance) it is considered pathologic. In fact, the appendix should appear at least two centimeters long to be considered as being normally visualized; less than this length speaks for pathology. If the appendix is incompletely filled with one part at the cecum and the other at the tip, this is considered pathologic (this observation differs from true segmentation). Fecal concretions in the appendix are without significance, neither is a long straight appendix necessarily pathologic (unless fixed in its entirety). Definite localized pain over the appendix, fluoroscopically observed, speaks for pathology.

*Summary.* The writer has been using the Czepa technic for some months and has frequently been able to visualize the appendix with this method when the usual methods failed. We have not made a sufficient number of observations however, to give a final opinion as to the efficiency of the technic. We urge that our colleagues consider the method, for anything that will increase our diagnostic acumen in the accurate diagnosis of chronic appendicitis will be appreciated by the general profession. (A lantern slide demonstration followed.)

#### DISCUSSION

Dr. Perry Goodwin, Peoria: I have never used this method, but I think from what Dr. Swanberg has said, it is a valuable asset. Our method has always been the study of the gastro-intestinal tract, to follow up the twenty-four or forty-eight hour examination, by the following points of which we have endeavored to make the diagnosis of the appendix, as well as the stasis in the region of the cecum, accompanied by visualization or non-visualization of the appendix and the tenderness which we have noted when we could at least visualize or practically visualize the appendix when it rolled under the finger, and it was definitely tender and painful.

We have always considered if the appendix would remain filled longer than forty-eight hours with this tenderness that it was definitely pathological.

I was wondering, in listening to Dr. Swanberg's

paper on magnesium sulphate, whether or not following our old methods it did not make some difference in our interpretation. There is increased peristalsis, no doubt, started up by the magnesium sulphate added to our present method, and I should like to ask Dr. Swanberg to make that a little bit clearer—whether he thinks that would change our method, as far as time, when using the forty-eight hour or longer retention in the appendix?

I feel that we have something here, and after it has been tried out by several of us and reported at another meeting, we will be able to have more definite results.

Dr. Harold Swanberg, Quincy: I am not, of course, offering this as anything new.

I think one more method we can utilize and try at times in our endeavor to study more thoroughly a patient is of benefit. The object of magnesium sulphate, as I stated in my paper, is to create a fluid opaque media in the cecum which excites excessive peristalsis. This drives more of the barium into the appendix and in that manner provides a better opportunity to visualize it.

If a patient comes to us for gastro-intestinal examination, we are giving ordinary barium and if we have trouble in visualizing the appendix, we are using the magnesium sulphate as an accessory method. In some cases the referring physician simply wants to know about the appendix and nothing else. We are using this method to more quickly visualize the appendix, when the sole object of the examination is to determine whether or not the appendix is pathologic.

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### BRONCHIAL ASTHMA—PROGRESS IN DIAGNOSIS AND TREATMENT

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Not many years have passed since bronchial asthma was deemed to be an incurable disease, and it must be admitted that there are many physicians today who still hold out no hope for the asthmatic. This feeling arose because up to the past fifteen or twenty years relatively few patients were relieved of their symptoms, and most of those who recovered did so accidentally—as the result, e.g., of losing a dog or cat.

The past two decades have witnessed a tremendously increased study of bronchial asthma and other allergic conditions. Hundreds of physicians are devoting all or most of their time to this specialty and thousands of other practitioners have become more and more conscious



of the great improvements which have taken place. Likewise, the prognosis has become better and better, and we can now truthfully state that bronchial asthma is *not* an incurable disease.

There have also sprung up numerous allergy clinics in cities all over the United States and some abroad. These centers are seeing enormous numbers of cases and are taking a leading part in increasing our knowledge along this line. One need only visit one of these clinics to realize the giant strides which have been made of late.

It must be emphasized, however, that the ultimate prognosis of any particular case of asthma depends upon early diagnosis of the condition and upon early and correct treatment. The following brief summary should help:

*Definition.* Bronchial asthma is a clinical condition characterized by attacks of dyspnea, wheezing and cough, caused by various excitants and associated with closure of the lower air passages.

*Etiology.* The causes of bronchial asthma may be placed in three groups, all of them important:

1. Constitutional Basis: Just what lies at the bottom of asthma, hay fever, and the other allergic conditions has never been determined. However, we do know that hereditary transmission occurs in most cases.

2. Exciting Factors: These are most important and are numerous. They consist of substances capable of starting or setting off an attack. They may be grouped as epidermals, e.g., feathers and animal danders; foods, e.g., eggs, wheat, milk; pollens, i.e., the yellow dust from trees, grasses and weeds; miscellaneous proteins, e.g., orris root (in face powder, etc.); and drugs, e.g., aspirin. Careful and complete skin tests are vital here.

3. Contributory Causes: These are mentioned first by most patients. They say that their asthma comes from "catching cold," from change of weather, over-exertion, nervousness, etc. These items are important, but we all contend with them. They alone cannot cause asthma, although they may make the attacks occur more frequently than they would otherwise.

We can't do much along the hereditary line except to advise against intermarriage between allergic patients. But we can do a great deal if we can ferret out and remove the exciting factors.

*Pathology.* We all know that the character-

istic dyspnea is due to obstruction of the respiratory tract, but the exact mechanism has not been proven. It is probably due to a combination of increased secretion in the bronchioles and to spasm and hypertrophy of the bronchial muscles.

Complications are chiefly two—emphysema and chronic bronchitis. These are very serious and difficult to combat. They constitute the chief argument in favor of early correct diagnosis and treatment. They are probably present in all cases where asthma is more or less continuous.

*Diagnosis.* It is not difficult to make sure of the diagnosis of bronchial asthma. The first attack may confuse, but even here it should not be mistaken. The physical findings of wheezing and prolonged expiration, and the evident dyspnea, orthopnea and cough are sufficient in the large majority of attacks.

To confirm the diagnosis are the history of allergy in the family; the history or presence of another of the allergic diseases, e.g., hay fever, in the patient; the presence of eosinophilia in the blood and sputum; and the relief by injection of epinephrin (adrenalin). Skin tests are of the greatest aid.

In order to rule out all other causes of dyspnea, every patient has a routine examination. This includes a careful history which helps run down clues as to the cause of the spells. For example, if the attacks only occur at home and at night, we naturally suspect something in the bedroom, e.g., feathers in the pillow or a hair mattress. Physical findings are noted and patients also undergo examination of the sputum, urine, blood (count and Wassermann), and chest fluoroscopy and x-ray. Special examinations are sometimes necessary, such as electrocardiogram, basal metabolism, and bronchoscopy. Nose, throat, and sinuses also receive attention.

*Skin Tests.* These must be carried out completely and they must be corroborated clinically. One cannot over-emphasize these two points. It is unfortunately true that many physicians (and some laboratories) are making ten or twenty scratches and consider that sufficient, and tell the patient skin tests have been done. This practice has been growing of late, e.g., some pediatricians merely test out their cases with a few foods. We know definitely that most patients are hypersensitive to more than one item—many to a dozen or more. One or two are

most important, but the others are usually contributory factors, at least. Partial testing is a poor short cut, as one will miss many positives by using that method. Group tests are to be mentioned and condemned. They are unsatisfactory.

The tests must be corroborated clinically, by all means. If there is a positive test for horse dander, have the patient ride horseback or go into a stable—see if an attack occurs. If an egg suspect, have him avoid eggs for a time and then eat them again. This procedure makes the skin tests of the greatest importance in the detective work so necessary in the proper treatment of bronchial asthma.

*Treatment.* This may be divided into preventive, specific, and non-specific. Each has its place.

Preventive: It is only recently that we have been emphasizing the fact that a great deal can be done to prevent bronchial asthma. We know that eczema in children is frequently followed by asthma in later life. It is only good sense, then, to test out each eczema patient promptly and completely, and to have him or her avoid all substances which give a positive test. This method gives brilliant results. Likewise, since about 40 per cent. of all hay fever cases develop asthma sooner or later, good treatment of the hay fever is indicated and is usually successful in warding off the asthma. Furthermore, since we know that many cases of asthma are due to animals, animal derivatives and foods, we should regard every child born of one or two allergic parents as potential asthmatics. We should have these children avoid animals, feathers, and hair mattresses; and one new food at a time should be given them so that any untoward results can be detected and the offending food eliminated.

By these means we can keep away asthma from most of those children who would be apt to develop this condition.

Specific treatment is the basis of our modern procedure. Two fundamental points exist here—elimination and desensitization.

By elimination is meant removal of all offending factors, e.g., eggs, wheat, feathers, dust, etc. To be successful, it must be thorough. An egg-sensitive child must avoid not only egg but all foods containing egg, e.g., cakes, pastries, mayonnaise, etc. Avoidance of eggs alone is rarely successful. A woman sensitive to orris

root must avoid all cosmetics made with orris root.

Desensitization is necessary in those cases where elimination cannot be completely carried out. For example, one cannot avoid house dust or pollens (except by moving); one cannot keep away from face powder containing orris root; it is a great hardship to avoid eggs, wheat, or milk. Horse hair is used so widely that it cannot be kept away from. For these cases, then, it is necessary to try to raise the patient's resistance to the offending substances. This has been very successfully carried out in many cases by a series of increasing subcutaneous injections of the substance itself, beginning with very dilute solutions and increasing the strength of the materials as the patient's tolerance increases. In food cases (eggs, wheat, milk) this method or the oral one should be used. It is obvious that foods which can be easily eliminated from the diet, e.g., shrimps, crabmeat or lobster, need only be eliminated.

Non-specific or palliative measures are legion. It is important to avoid those factors which tend to bring on attacks, e.g., wet feet, "colds," over-exertion, etc. These play a part and should not be overlooked.

Adrenalin still stands supreme.  $\frac{1}{2}$  to 1 c.c. of 1:1000 dilution subcutaneously relieves most attacks. Ephedrin by mouth in  $\frac{1}{4}$  to  $\frac{3}{4}$  grain dosage is next best. Iodides, apomorphine, belladonna, etc., help in many cases. Morphine should not be used where adrenalin is successful. It is not as good in asthma as is adrenalin and it is dangerous. We use morphine only in the most severe cases, where adrenalin has failed completely; and when we use it we do so cautiously and with great fear of fatality.

Vaccines help in some cases, especially in the infectious group of asthmatics. We have seen little difference in results from the use of stock or autogenous vaccines.

Operations on the nose and sinuses are indicated where definite pathology exists. However, relief obtained by these has only too often been temporary. Fever treatment may give relief for some time.

Change of climate has failed in the few cases where thorough examinations and testing and treatment have been carried out, and the patients have not been relieved. Our failures have



not been benefited by moving to some other part of the country.

*Causes of Failure.* Why do patients continue to have attacks of bronchial asthma? Many factors are involved here, but, briefly, they can be summarized as follows: First, they report for examination too late, after emphysema and chronic bronchitis have set in. We cannot undo emphysema and therefore cannot hope to completely clear up these cases. We can improve most of them.

Secondly, many patients are not tested out or are incompletely tested. The skin tests afford us our best method of determining the exciting cause—the substance or substances which precipitate the attacks. The tests not done may be the ones which are important in the particular case.

Lastly, the lack of clinical judgment plays an important part. For example, when one is confronted by a patient who gives a dozen or more positive skin tests, it takes judgment and experience to determine which are the important ones. But here we may rely on what we mentioned above, i.e., eliminate all suspected substances and eliminate thoroughly; and desensitize against only those things which cannot be completely avoided. Firmness is necessary in many cases; e.g., a patient has a dog and gives a positive skin test for dog hair. It is folly to permit further contact with the dog—it must be removed. No sentimental affection for a playmate can be allowed to enter here.

#### SUMMARY AND CONCLUSIONS

1. The study of bronchial asthma and other allergic diseases is probably progressing faster than any other branch of medicine.

2. The results are improving, depending upon proper treatment instituted early in life.

3. While it is doubtful if allergics ever become completely desensitized, it is not difficult to achieve that condition of hyposensitization which is equivalent clinically to complete relief of symptoms.

4. Complete examination, including thorough skin testing, is essential to good prognosis.

#### THAT'S DIFFERENT

Mistress (to new chauffeur): "Thomas, I am used to calling my chauffeurs by their last names. What is yours?"

Thomas: "Darling, Ma'am."

"Drive on, Thomas."—*Patchwork.*

#### CONVULSIONS IN CHILDHOOD

M. G. Peterman, Milwaukee (Journal A. M. A., Aug. 13, 1932), reports the results of a study of 419 cases of convulsions in children. A diagnosis was established in 93.3 per cent. The study includes a complete history, a careful physical examination, including neurologic studies, a blood count, a Wassermann test of the blood and micro-precipitation tests, urinalysis, examination of the spinal fluid (except in spasmophilia), examination of the fundi, x-rays of the skull and examinations of the stools. In the past three years the author has made encephalograms in doubtful cases. The results reveal that certain diseases peculiar to childhood are the direct causes of most of the convulsions. While some children may be said to be particularly susceptible to the convulsive state, this study indicates that there is usually a physical basis for this susceptibility (spasmophilia or epilepsy) which is amendable to treatment. Every convulsion produces a certain amount of cerebral injury and therefore lowers the threshold for subsequent seizures. Every convulsion demands a careful study and effort to prevent a recurrence. It is extremely unfortunate that there are still physicians who consider convulsions a necessary evil of childhood and advise parents that the child will "outgrow" the tendency. The author presents a practical classification of convulsions in childhood based on the age of the patient.

#### HEADACHE REMEDIES DANGEROUS IF UNWISELY USED

Persons who carelessly use headache powders, tablets, medicines, or certain other temporary reliefs for pain, may take chances with illness, even death, according to Dr. F. J. Cullen, chief of drug control, Federal Food and Drug Administration. The Administration, says Cullen, has on file records showing that serious consequences have followed careless or indiscriminate use of medicinal pills or medicines containing such dangerous drugs as acetanilid, phenacetine, opium, cocaine, and chloral hydrate.

In 25 years of enforcement of the Federal food and drugs act, Government officials have removed from the market a number of drug preparations labeled with false or fraudulent claims for the relief of pain. But the food and drugs law gives enforcing agents no power to prevent the sale of medicines and pharmaceuticals containing harmful or poisonous drugs or compounds, although it specifies that the presence of certain of these must be declared upon the label. Alcohol, morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, and acetanilid, or any derivative or preparation of such substances, if present in a drug preparation, must be declared clearly.

"Acetanilid, acetphenitidin, amidopyrine, aspirin, and other coal-tar derivatives, are commonly found in headache powders and pills," says Cullen. "There is a possibility that any one of these coal-tar derivatives will have a depressing effect on the heart of certain individuals who are particularly susceptible. Some time ago the Government investigated the case of a woman, then

living in Amsterdam, N. Y., who was killed suddenly by an overdose of a headache medicine containing acetanilid which she has taken to relieve headache. The average dosage of acetanilid prescribed by physicians is three grains. The woman, however, had taken a powder containing six grains of acetanilid, followed soon after by another containing an equal amount. Death was practically instantaneous. Over-dosage of acetanilid has not infrequently proved fatal, the coal-tar product acting with most individuals as a heart depressant. The case was referred to food-and-drug-law officials by the Commissioner of Health of New York, but the Federal Government was powerless to take action inasmuch as the boxes containing the powders were truthfully labeled with a statement showing the quantity of acetanilid present. Many drugs, like strychnine and opiates, are harmful and poisonous but, nevertheless, in some disease conditions, are useful medicines. The Federal food and drugs act does not prohibit sale of poisonous medicines. It does require that certain ones be declared upon the label. Acetanilid is one of the drugs specifically required to be declared. The discriminating purchaser, who reads the label, receives a warning and has an opportunity to protect himself."

#### THE ENGLISH DOLE HAS PROVED A FAILURE

Compulsory Health Insurance, so praised and urged by the English Government, has after seventeen years' trial proved a failure. It was pushed through by Lloyd George in 1911. It was hailed to solve the question of national health, as well as the family doctor bill. It has undermined medical initiative, does not recognize merit in medical practice; it forgets the stimulation of medical research and tends to paralyze medical progress. It will never succeed in this country. It has pauperized the English people and threatens to pauperize the medical profession.

#### CARBON PURIFIES WATER

Companies that sell water to small cities have long been baffled by micro-organisms which are not in themselves dangerous but which impart a slight but perceptible taste. Copper sulphate kills the organisms or arrests their growth, but the addition of chemicals to water is usually frowned upon. Years ago it was discovered that carbon absorbs odors and tastes, but that it must be in a chemically active form to do its work. It is common in Europe to cook cabbage with a piece of charcoal. The practice is only partly effective in preventing the spread of odors, but it proves that housewives know something of the absorbing powers of carbon.

With this clue, research was begun in 1928, which culminated in the discovery that carbon has only to be applied in a very fine powder to be effective. Less than ten pounds of carbon dust will purify 1,000,000 gallons of water every 249 days. The familiar charcoal household filter thus has a scientific reason for its existence.—N. Y. Times, July 17, 1932.

### Marriages

EDGAR ANDREW RYGH to Miss Ernestine Kolbus, both of Chicago, July 29.

JAMES EARLE WHEELER, Belleville, Ill., to Miss Catherine Louise Davis of Beloit, Wis., June 18.

### Personals

Dr. and Mrs. Eli V. Rice, Polo, celebrated the golden anniversary of their wedding, August 8.

Dr. Garold V. Stryker, St. Louis, addressed the Effingham County Medical Society, July 14, on "Epidermophytosis."

Dr. Samuel Reed Ward, Richmond, celebrated his ninetieth birthday, August 7, with a family reunion at Lauderdale Lake, near Elkhorn, Wis.

Dr. William T. Short, Stonington, has been appointed district health superintendent of the state department of health, succeeding Dr. Frank P. Auld, Shelbyville. He will have charge of the counties of Macon, Christian, Fayette, Shelby, Cumberland and Montgomery.

Dr. William H. Walsh has been engaged as technical adviser to the special committee of the Monterey branch of the Mexican Medical Association by the governor and secretary of state of Nuevo Leon, Mexico, to assist in the planning, organization and equipment of the proposed medical center at Nuevo Leon.

### News Notes

—Wesley Memorial Hospital announces that it has equipped several rooms with air filters, rubber covered mattresses and pillows for cases of asthma and hay fever due to some inhalant factor.

—The American Academy of Ophthalmology and Otolaryngology will hold its Thirty-seventh Annual Meeting in Montreal, Canada, September 19 to 23, 1932. The program will consist of addresses, clinical reports and conferences.

—The Warren County Medical Society, Monmouth, sponsored its annual summer clinic for crippled children, July 14. Seventy-five chil-



dren were treated, half of whom were new patients. Their ages ranged from six months to fourteen years. Dr. Philip H. Kreuscher, Chicago, was in charge.

—The Executive Committee of the Medical and Dental Women's Association of Century of Progress entertained at a buffet supper at the residence of Dr. Lena K. Sadler, Wednesday, August 3. Dr. Florence N. Gribble who has spent twenty-five years in the heart of Africa was the guest of honor and speaker.

—The International Assembly of the Interstate Postgraduate Medical Association of North America will be held in the Murat Theatre and Shrine Temple, Indianapolis, Indiana, October 24-28, 1932. Many distinguished teachers and clinicians will appear on the program. A major list of the names of the contributors to the program, with other information, appears on another page of this Journal. All members of this State cordially invited.

—According to the *Illinois Health Messenger*, case reports of diphtheria for the first twenty-nine weeks of 1932 indicated a decline of 31 per cent as compared with the total for the corresponding period of 1931. In the first five months of 1932 there were 112 deaths from diphtheria against 184 in that period of 1931, a decline of nearly 40 per cent. Cases reported during the six weeks ended July 18 were less than one-half the number for the similar period of 1931, which was one of the most favorable years on record. Credit for the decrease in diphtheria is given to the successful diphtheria immunization campaigns carried on throughout the state. Never before have so many children in Illinois been immunized against the disease as during the last twelve months, the *Health Messenger* reports.

—At the Mooseheart School, Mooseheart, which has an enrollment of about 1,500, there has occurred only one case of diphtheria since 1920, and not a case of scarlet fever since 1926, among the tested and immunized students. There have been no cases of diphtheria at the Soldiers Orphans Home, Normal, which has a constant child population of more than 650, and none of scarlet fever since October of 1929. One case was reported in that year. Immunization work started at the home in 1925, and at Mooseheart in 1926. All children present at that time

were given the Dick test and treated with the Dick scarlet fever toxin. Since that time all children admitted to the orphans' home have been tested at the time of admission and the reactors immunized. At Mooseheart the testing is done each six months, those previously immunized being retested along with those newly admitted. Drs. Ralph P. Peairs and John D. Nichols are the medical directors, respectively, of the home and of Mooseheart School.

—Plans are under way for the establishment of a school for occupation therapy to work in connection with the Goodwill Industries' shops for the handicapped and occupation service, and the Cook County Hospital. The organization meeting was held July 27. Work is being directed to have the school in operation by early fall. The school will be housed in the headquarters of the Goodwill Industries, which is now located in the building formerly occupied by the University of Illinois College of Medicine and which was turned over to the industries in recognition of its work for the rehabilitation of the handicapped. The school is to be independent from all existing medical institutions so as to be able to serve all of them equally well, an announcement states. It is intended to offer free demonstration courses to medical students and physicians. Intensive courses of two, three or four years, to train technicians and practitioners of occupational therapy, may be developed on the basis of the lowest possible student fee to render this nonprofit enterprise self-sustaining in the course of time, the announcement continues. The board of trustees, when organized, will devise some plan of providing a budget. The Goodwill Industries are organized for philanthropic purposes, and the primary objective is to provide occupational training for the handicapped.

—A man is operating in all sections of Chicago, giving various names. One day he is Harry Olson, and then he is Harry Bowman. He endeavors to pay for the office call with a small check a little larger in amount than the usual office call, and some of the time Doctors have given the man the difference between the office charge and the face of the check. A favorite name found to be forged to these checks is a Dr. Hanson, D. D. S. The patient gives an

address of a vacant lot, or a missing number in the block.

The imposter, in some of the instances, is a man apparently about 30 years of age, of good appearance, slightly stout, weighing perhaps about 160 pounds. His favorite complaint is trouble with a knee, which on examination will be found somewhat stained with iodine, and a trifle larger than the opposite one.

If such a suspicious character consults you professionally, offering such small check as is above described, do not arouse his suspicion, nor greet him with an abrupt refusal, but get word to the police, who are endeavoring to run down this swindler.

## Deaths

HENRY WHIPPLE ALLPORT, Chicago; Cornell University Medical College, New York, 1899; served during the World War; aged 67; died, July 27, of angina pectoris.

OLIVER BREWSTER BABCOCK, Decatur, Ill.; Washington University School of Medicine, St. Louis, 1879; aged 75; died, July 31, in Decatur and Macon county hospital, of cerebral hemorrhage.

EMIL G. BECK, Berkeley, Cal.; College of Physicians and Surgeons, Chicago, 1896; a Fellow, A. M. A.; member of Illinois State Medical Society, Western Surgical Association, American Association of Thoracic Surgery, American Roentgen Ray Society, Radiological Society of North America and American Radium Society; fellow of American College of Surgery; in 1923 received from American Roentgen Ray Society a gold medal in recognition of original work in stereorentgenology; brother of Drs. Carl and Joseph C. Beck; author of "Chronic Suppurations—Treatment by Bismuth Paste;" aged 66; former director of the North Chicago Hospital, Chicago, and on the staff of the Merritt Hospital, Oakland, Cal.; died, July 1, of cerebral hemorrhage.

JOHN HENRY BYRNE, Evanston, Ill.; Rush Medical College, Chicago, 1874; aged 91; died, June 23 in the Psychopathic Hospital, Chicago, of senile dementia and chronic myocarditis.

ROZEL M. CURTISS, Marengo, Ill.; College of Physicians and Surgeons, Chicago, 1884; Chicago Homeopathic Medical College, 1885; aged 76; died, July 3, of angina pectoris.

CHARLES T. DONOHUE, Chicago; Jenner Medical College, Chicago, 1910; aged 63; died, July 25, of chronic myocarditis.

FRANK R. FRAZIER, Yorkville, Ill.; Rush Medical College, 1895; aged 60; died, August 7, in Copley Hospital, Aurora, of cerebral hemorrhage.

LOUIS LEON FRISQUE, Chicago; Northwestern University School of Medicine, Chicago, 1911; member of the Illinois State Medical Society; Fellow of the American College of Surgeons; on the staff of the Ravenswood Hospital; aged 49; died, July 27, in the Sacred Heart Sanitarium, Milwaukee, of encephalomalacia.

FREDERICK F. GANO, Newark, Ill.; Medico-Chirurgical College of Philadelphia, 1899; aged 58; died, June 18, in St. Charles Hospital, Aurora, of diabetes.

MARY ELIZABETH HANKS, Chicago; Boston University School of Medicine, 1897; past president of the Chicago Council of Medical Women; member of the Radiological Society of North America; aged 70; died, July 17, of myocarditis and angina pectoris.

WILLIAM FRANKLIN HARPEL Chicago; Hahnemann Medical College and Hospital, Chicago, 1905; formerly professor of physiology and biology at his alma mater; aged 75; died, June 10, of chronic myocarditis, prostatitis, cystitis and arteriosclerosis.

EMIL HANRY HERMANN, Hillsboro, Ill.; St. Louis University School of Medicine, 1920; a member of Illinois State Medical Society; aged 37; died, July 16, of angina pectoris.

PHILIP HERRIN, Villa Grove, Ill.; Barnes Medical College, St. Louis, 1903; member of the Illinois State Medical Society; secretary and past president of the Douglas County Medical Society; veteran of the Spanish-American and World wars; formerly bank president and major; aged 54; died, July 18, of cerebral hemorrhage.

GEORGE YOUNG HORD, Keyesport, Ill.; Medical College of Ohio, Cincinnati, 1878; formerly postmaster of Keyesport; aged 83; died, June 21, of carcinoma of the liver.

HENRY WELLINGTON LANGSTAFF, Colfax, Ill.; Hahnemann Medical College and Hospital, Chicago, 1885; a former member of Illinois State Medical Society; aged 76; died, July 13.

JOSEPH MARION LITTLE, Pana, Ill.; Missouri Medical College, St. Louis, 1899; member of the Illinois State Medical Society; medical superintendent and owner of a sanatorium bearing his name; aged 64; was instantly killed, July 11, when the automobile in which he was driving was struck by a train.

WINFIELD W. PULLIAM, Dow, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; aged 81; died, June 5, of diabetes mellitus.

WALDEMAR J. SIEMINOWICZ, Chicago; College of Physicians and Surgeons, Baltimore, 1893; University of Illinois College of Medicine, 1895; editor of *Ukrania*; aged 72; died, June 13, of carcinoma of the rectum.

JOSEPH CHASE STUBBS, Chicago; Northwestern University Medical School, 1889; a Fellow, A. M. A.; former president of the Illinois Hospital Association; aged 67; died, August 18, of chronic nephritis.

JAY THOMAS WOOD, Springfield, Ill.; College of Physicians and Surgeons, Chicago, 1907; served during the World War; aged 48; died, June 11.



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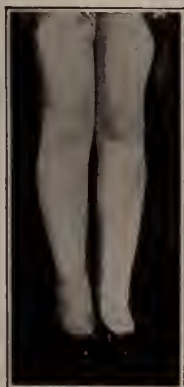
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# ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF  
THE ILLINOIS STATE MEDICAL SOCIETY

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No. 4

## ILLINOIS MEDICAL JOURNAL

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## Editorials

### YOU MAY NOT BE INTERESTED IN POLITICS, BUT POLITICS IS INTERESTED IN YOU

IN ITS MANAGEMENT OF PUBLIC BUSINESS POLITICS GRIPS EVERY MAN'S CONTACT WITH SOCIETY AND WITH THE GOVERNMENT—

PHYSICIANS CANNOT AFFORD TO QUIT

POLITICS, FOR POLITICS WILL NOT QUIT

THEM—THE QUALITY OF POLITICS

DEPENDS UPON THE DEGREE OF

PUBLIC INTEREST IN IT

Party politics must go under the hammer and go now. Physicians of Illinois must make count their influence for requisite legislation through the results of the next election.

There is no time to waste, elections hang over our heads. November 8 is a day of destiny. The voice of the candidate is heard in the land. So the vote of the physician must be cast for those candidates who will lend an ear to the profession as to matters affecting the medical profession and its dependent, the public health and welfare.

Ballots talk. More effective than all other oratory is the count at the polls. Let the physicians of Illinois show that this gift of electoral eloquence is not denied them by making themselves heard at election day.

The times demand that patriotism supersede partisanship. What alliance each candidate for any office has made with the insidious red propaganda springing up stout as purslane all over the land, each and every doctor should discover without any delay and judge his voting accordingly.

Doctors who think that they can dodge the perhaps tedious, but admittedly necessary task of becoming interested to the point of personal exertion in the government of the United States are mistaken. The rule holds that a man must govern his house or be governed. Apathetic physicians who are willing to submit to the despotism of money-grabbing, wire-pulling politi-

cians may find food for thought and spur to action on November 8 in this quotation:

"There is no escaping politics. It has a bearing on almost every human interest. A doctor may not be 'interested in politics,' but politics is interested in him. In its management of public business it grips every man's contact with society and with the government.

"It is impossible to be born or to die, to marry or to be divorced, without politics having to do with the matter. Every tax you pay, the smooth streets and the good roads, the public schools, the fire department, the health department, the water you drink, asylums, courts, custom houses, jails and penitentiaries, the police, the post office, every law and ordinance—all spring from government, government springs from parties, and parties are in politics.

"The people can not afford to quit politics, for politics will not quit them. The quality of the politics depends upon the degree of the public's interest in it."

But the people can quit the parties and should quit any party whose candidate does not stand for the people's principles.

What better, plainer plea can be made the physician and at this crucial moment.

Remember election day, November 8.

As a guide to the voting physician let information be given on the following general principles, of interest equally to the medical profession and the general public.

We have too many laws, and too large a tax levy.

Living expense and taxes will be lowered as soon as hundreds of over-priced, interfering, recently adopted and unnecessary laws are done away with. America is mortally ill from a plague of laws. This evil is maintained at an annual cost per capita of \$91, and of about \$350 per family. One out of every twelve people in the United States who are over sixteen years of age, and who are gainfully employed, is on the public payroll. In the last few years this ratio has arisen from one out of every 1,000.

There are 15,000,000 employees on the public payroll according to the estimates of census statisticians. *This places an office-holder or "tax-consumer" on the backs of every two tax-producers.* Exclusive of pensioners there are almost three million public servants whose pay comes from the ever increasing taxes. A large propor-

tion of this number is engaged in the administration and execution of superfluous statutes.

A similar situation crushed France and produced the French revolution. It was the banè and damnation of Germany.

*"Americans are now compelled by law to do, and prohibited by law from doing, more things than were the citizens of autocratic Europe before the war."*

We are the victims of a paternalistic regime that will eventually enslave and bankrupt the country. The *cost of government* has become unbearable. Too many functions of local and of state governments are being controlled by hidden bureaus in Washington. *There is more power exercised today in these bureaus by unknown "experts," political appointees of whispering propaganda, than by the courts themselves.*

Centralization of government, bureaucracy, state subsidies and autocratic control are a poignant menace, and a fatal growth.

Bureaucracy is a curse wherever inaugurated. In the management of medical affairs it is fatal. Germany stood at the pinnacle of medical achievement thirty years ago. Under bureaucratically administered state medicine, Germany has come to have the worst medical service in the world and the poorest care for the health of the people. It will be ruinous to the health and welfare of the United States if this system is adopted in this country.

Before the coming legislature and convening Congress there will be presented many bills, attempting to regulate incompetently the practice of medicine and needlessly to increase taxation. Many of these bills will provide for the licensing to practice medicine, of uneducated and improperly equipped men and women.

We ask no especial favors for doctors, but we believe in a single standard of education and a thorough professional training before a man or woman can be licensed to practice the healing art or to diagnose disease.

Persons who seek a license to treat human ailment in the State of Illinois should know how to make a diagnosis of disease which is essential for the conservation of the public health.

There should be no side door short cuts to the practice of the treatment of disease in this State.

Don't vote for any man unless you know his attitude towards medical legislation designed to increase taxes and to medical legislation in-



tended to safeguard your health and that of your neighbors and fellow-citizens.

**DON'T FORGET TO GO TO THE POLLS ON NOV. 8—AS CALVIN COOLIDGE SAYS, "THE RIGHT TO VOTE IS MORE THAN A DUTY, IT IS A PRIVILEGE." WHERE MEDICINE IS CONCERNED, IT BEGINS TO LOOK AS IF THE DOCTORS MUST EITHER VOTE FOR COMMUNITY RIGHTS OR ELSE BE SUNK BY COMMUNISTIC WRONGS**

Again the job of voting confronts us at the election November 8. This year added to all the rest, we must choose a president.

Must the physicians of the land spend even more money, and more time, to discover that neither they nor their profession can compete with practical and practicing politicians? When will they learn the importance of paying more attention to election day—every man with an "M.D." at the end of his name who calmly sits back now and lets the country be run by those who are not "too busy to bother" with the ballot?

What economic self-preservation the medical profession has been able to achieve has not accrued from any devotion to citizenship duties, but because of the respect in which, even in this topsyturvy day, the average citizen, still holds the medical profession. Of course this same "Mr. Average Citizen" through endowed foundations is only too often trying to practice medicine himself—but—even so

If the doctors of Illinois would attend ever so slightly to their personal citizenship duties—which is a task involving their personal participation in all elections—the result would be a near-panacea for a multitude of civic ills, that are insidiously near to eating at the very core of the essence of civilization.

It is no longer a question of a man's "getting" or "not getting into politics." Medical men must cry "Checkmate" to politics. For the politicians of the country have already grabbed hold of the very tail of the medical profession, and are literally swinging this august body of men about with as little ceremony as if it were a yellow dog!

Blinking at facts is useless. The entire trend and achievements of legislation in the past

twenty years shows how medicine is made the pawn of politics. In another twenty years the medical profession will find itself throttled and altogether ham-strung unless it awakens speedily to the situation. Nor does "waking up" mean that any man can do this deed vicariously. The situation is up to the individual physicians of the land. Every doctor must get to the polling place.

Each doctor must doff his toga of science sufficiently long to discover what is going on before it goes so far as to give him and his profession, and par consequence, the public health and the virility of civilization—a knock-out blow. Just as soon as physicians enter the actual arena of politics and lend their professional support to those ethical lawyers and clergymen who are accomplishing a brave futility in the effort of getting politicians out of politics, there will be the requisite essential change in conditions for restabilizing foundations of the world's greatest democracy and even of civilization itself.

Well has it been said that the policies of one set of politicians are in force so long as "fifty and one-tenth per cent. of the votes are cast for those politicians, and the opposite policies are in force when one voter in a thousand changes his mind. It is on such extremely slight changes as these that often hangs success in any political field."

Even now, hobbled by the almost ubiquitous lethargy with which the average physician regards elections, candidates and the entire system of democratic government—physicians have far more influence than they suspect with members of law-making bodies.

Wide knowledge, good judgment, public spirit and the gift of vision are sine qua non with every successful man of medicine. Physicians everywhere should realize the imminent necessity for their stating to the public as well as to law-makers, not only the ideals of the profession, but the arguments for adoption of these ideals and their absolute bearing upon the health and the wealth of every country. This setting forth of principles should, if indicated, be also a going forth to war for the right—a defense of medical ideals and of the country itself.

Everybody, everywhere may not agree with some of the ideas and dicta of President Coolidge. But every sane minded individual, any-

where, must coincide with these assertions of the nation's chief executive:

"Many of the founders of our government gave all their wealth and their lives for the right of franchise.

"The right of franchise is the right to vote.

"It is the most valuable heritage that the American people have.

"The right to vote is more than a privilege.

"It is a duty.

"Our government will continue to give us the opportunity for independence and freedom only if we do our duty towards the government.

"Our duty is to go to the polls and vote intelligently.

"It is our duty to see that each member of our family, who is qualified, votes.

"It is our duty to know the records of the candidates.

"To some of them you will entrust your liberty and the protection of your property."

Again are the physicians of the country besought to take heed of the electoral situation.

---

**DOCTOR, GO TO THE POLLS AND VOTE ON NOV. 8—TABOO PARTY POLITICS—THE BULK OF THE DOCTOR'S WOES ARE ECONOMIC—MAKE YOUR CHOICE BETWEEN THE CANDIDATE WHO IS WRONG BOTH ECONOMICALLY AND SCIENTIFICALLY AND THE CANDIDATE WHO WILL RIGHT THESE WRONGS—CHANGE UNBEARABLE CONDITIONS**

Every physician in the State of Illinois must go to the polls and vote on Nov. 8, or else hold himself largely responsible for and absolutely devoid of a right to protest against economic conditions entailing little less than menacing servitude of the medical profession.

Even if a man fails to agree with all the tenets and policies of former President Coolidge, there can be no dissension from Mr. Coolidge's clearly expressed dogma that:

**"EVERY VOTER OUGHT NOT MERELY TO VOTE, BUT TO VOTE UNDER THE INSPIRATION OF A HIGH PURPOSE TO SERVE THE NATION."**

The voice of the ballot is almost as loud as the stentorian tones of that good old-fashioned medium, "Spot cash." For spot cash, or ready

money, can purchase almost any of the necessities of life, and "necessities of life" savour of the great mirage in the homes of far too large a percentage of practicing physicians today. Either their practice is being taken out of their hands by lay institutions and endowed foundations practicing medicine or, if they have kept even a small remnant of practice, the patients are unable to pay. World-wide as is the depression today, sharp as is the pinch upon the purse of every citizen, the doctor's pocketbook began to get this squeeze acutely at least fifteen years ago. Despite the danger that was pointed out in the columns of this periodical, despite the diagnosis that the trouble lay rooted in a socialistic infection spread by politics and political contacts, and that the one panacea lay in the ballot box, thousands of physicians disregarded the simple remedy for a raucous ill.

Again the Editor of this JOURNAL asks, ay, even entreats his brothers in medicine to stop, look and listen to where this trend is leading. Economists admit that we are passing through one of the greatest crises in the history of civilization. So far it has been kept chained within the limits of economics, but those who are weather wise are dreading the hour when, if unchecked, the debauch of degeneration shall send its lesions into the very heart of science and of culture. The footprints in the trail are already marked only too plainly in the fields of the fluid sciences of which medicine is at once the sacrifice and the sacrificer.

What every doctor should do and do without hesitation is to discover which men among the hundreds striving to be elected as government of the country are the men who stand for Americanism; who are patriots first and politicians afterwards.

This is the time, as never before, when elections demand not party politics but patriots of the people.

The United States of America founded its Constitution, owes its birth to the principles of liberty as well as to community justice. It has become the habit with fine phrasers to substitute the word "communist" for "community" and "party" for patriot."

When the doctors of this country get down to brass tacks and weigh in the balance whether it is better to spend a little thought on politics and less on protest, more on citizenship and less



on complaint over spilled milk, the answer will be easy to dozens of problems confronting the doctors today.

Try it during the next fortnight. Find out who is running for office in your town, your county, your state, your country. Discover the attitude of these candidates towards these problems besetting humanity with which the physician must cope every day of his life. Decide upon the man who can best serve the purpose of the ideals of organized, scientific, self-sacrificing medicine, and let your ballot do the rest.

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### **CLINICS FOR PHYSICALLY HANDICAPPED CHILDREN WITH THE APPROVAL AND CO-OPERATION OF ILLINOIS STATE MEDICAL SOCIETY**

**ACTION OF THE COUNCIL OF THE ILLINOIS STATE MEDICAL SOCIETY**

Monday, September 12, 1932

In order that the 16,000 or more physically handicapped children of Illinois may receive proper treatment and be made self-sustaining citizens, the Illinois State Medical Society is entering into a far-reaching program of clinics for physically handicapped children.

At the Council meeting of the Illinois State Medical Society held in Chicago, Monday, September 12, attended by physicians from all sections of the State, as well as by the State Director of Public Health, Doctor Andy Hall, a plan was adopted whereby each county medical society may conduct clinics for the care of this group. These clinics will be self-sustaining and will be conducted without increased taxation on the public.

These proposed clinics will not interfere with the work already undertaken by other recognized agencies nor with the clinics already functioning in some sections of the State. The Illinois State Medical Society hopes that the clinics will receive the co-operation and assistance of lay groups within the counties and that because of this co-operative effort great success will be attained and many of the present physically handicapped be restored to society. At the present time such work is being carried on with great success by the Warren County Medical Society at Monmouth, Illinois.

Through the efforts of the State Department of Public Welfare, the State Department of Public Instruction and the State Department of Public Health, a survey was made which revealed there were more than 16,000 physically handicapped children. This survey will be used as the basis for the clinics sponsored by the county medical societies.

The crippled child in most instances is a chronic invalid. Too often the parents of these children are poor and cannot provide adequate care or medical attention over a long period of time. As a result these children are looked upon as hopeless invalids and very little is attempted for the improvement of their condition. The parents, the doctor and the community finally become reconciled to the belief that nothing can be done. As a result no one seems to care. The job of reclaiming the cripple belongs to the community and the county. In the belief that the county medical society should shoulder this responsibility, the Council of the Illinois State Medical Society is recommending that the physicians of the counties, organized for the best interests of the community, assume the task of reclaiming these physically handicapped children for the State.

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### **POLICIES OF THE EDUCATIONAL COMMITTEE REGARDING RADIO HEALTH TALKS**

1. **TREATMENT** is not to be discussed over the radio by any of the agents of the Educational Committee of the Illinois State Medical Society.

2. **PERSONAL ADVERTISING** must be avoided.

3. **ALL RADIO PAPERS** are to be submitted to the office before being broadcast. No article is to be given over the radio until it has had the approval of the Educational Committee.

4. **RADIO PAPERS MUST BE READ EXACTLY AS APPROVED BY THE COMMITTEE.** There are to be no changes or additions made when the article is read over the radio.

The Educational Committee of the Illinois State Medical Society wishes to conform with the policies of the House of Delegates of the State Society as well as with those of the House of Delegates of the American Medical Association.

tion, as stated in the Journal of the Association for June 11, 1927, as follows:

"The House of Delegates concluded that interviews or articles of an educational nature on medical or health subjects, intended for the lay press or lay audiences should give expression to the consensus of opinion of the medical profession rather than to personal views which may be in conflict therewith, and that articles should appear preferably under the auspices of the American Medical Association or one of its component societies or constituent associations.

"\* \* \* discussions of new discoveries, of proprietary products, and of special notions may well be confined to medical periodicals, which constitute an open forum for determining the actual status of things in dispute."

TO SUCCEED IN A RADIO TALK, the subject must be made to interest the audience. Repeat your subject from time to time.

Avoid long words or long or involved sentences.

### THE MOST RECENT UNIT TOWARDS MAKING CHICAGO WORLD'S MEDICAL CENTER

Any facilities missing or assets lacking to seal Chicago's claim to the title of "Medical Center of the World" would appear to be supplied by the newly opening Cook County Graduate School of Medicine. Its scope involves procedure that will abrogate the stress, inconvenience and expense of long and often disappointing postgraduate work abroad.

This institution will give the medical profession opportunity for graduate studies and supply it with no less fertile a field of clinical material than the Cook County Hospital, one of the greatest medical clearing houses ever known to civilization.

Statistics show that the 3,500 beds of the various branches of institutional care afforded by the Cook County Hospital are almost continuously occupied and that the number of patients per annum averages upwards of 60,000, with practically all known human ailments under observation.

The success of any scientific or learned profession and the value of its benefits to the communities it serves is based upon the perennial and unremitting habit of study and augmentation of

knowledge to which its members conform. No man of medicine knows all he can, or all he should or all he must know about the arts of healing, upon the day he gets license to write "M. D." after his name.

Possession of a sheepskin from the best of medical colleges writes only "Ave" and not "Vale" to any doctor's task as a student. He has learned in his colleges, of medicine and of surgery. He is ready now to learn from the great university of suffering humanity itself the *why*, the *wherefore* and the most positive *how*.

Need for postgraduate work has never been denied. Necessity for this training is emphasized more and more every day. And the best postgraduate work is clinical.

The finest faculty of the foremost postgraduate institution that a finecombing of medical savants might produce would be at a sad loss if clinical material were absent. The postgraduate student, even more than the embryo medico, must needs have the bedside clinic for best results. As a consequence this opening of a postgraduate school affiliated with the Cook County Hospital is a master stroke of achievement and opportunity both for medical men and for their patients. It is an all American opportunity for all Americans for the Cook County hospital affords an almost peerless clinic.

Under the name of The Cook County Graduate School of Medicine, affiliated with the Cook County Hospital, national medical education is securing its greatest gift in the past half century. Here is the opportunity for every doctor to meet the demands placed upon him by a modern civilization and the almost fabulous advancements in the medical sciences. It is his chance to "keep in step."

Such advancements in the last twenty years have been tremendous and fundamental almost to the point of incredulity. Yet the benefit of the bulk of this medical research has been felt by the undergraduate student. Here is the graduate's chance! Because of these advances, the post graduate college has flourished and done nobly by the older men in the medical profession. So long as there is advance in medical science, so long will the need for postgraduate schools keep pace.

Even Europe admits that today medical courses in our larger and best managed medical colleges are the equal of those in any foreign uni-



versity and even in some instances far superior to anything that Europe can offer.

What weakness lies in our medical educational equipment in the matter of variety and comprehensiveness lies primarily in what the American Medical College can offer to the graduate man. Postgraduate work must be intensive as well as competent and comprehensive. Few men can afford to leave their practices for a great length of time, nor to go clear across the continent to get what they need. Nor is the tedium of undergraduate routine either desirable or acceptable to the postgraduate man, whose presence in the undergraduate class room on the other hand is only too often regarded as an intrusion and that excusably enough.

Thanks to the foresight of Cook County medical men this postgraduate gap is about to be bridged, and that in the very heart of the continent—Chicago.

For in the Cook County graduate school of medicine the medical profession has the opportunity of graduate study in an ideal environment supplemented by the almost unlimited facilities of the Cook County Hospital, and under expert supervision.

Only by a foundation of thorough medical and surgical training can be built the superstructure of a successful medical career. That early knowledge acquired from the fundamentals in medicine must be reinforced by graduate training. Of this there is no argument. The Cook County Graduate School of Medicine and its affiliation with the Cook County Hospital offers study of all classes of medical and surgical cases. Courses are organized in all branches of medicine and surgery as well as intensive courses for the physician or surgeon who can spend only a short time in extra study but in that must obtain the greatest amount of training and knowledge. Longer courses are available for those men who wish to prepare themselves for a chosen specialty, and need not hasten unduly. Advanced graduate medical education is literally laid on the door steps of every physician in the middle west by this new institution.

While the courses of our medical colleges have been expanding in richness and merit and variety during the last two decades this same progress in the fundamental sciences of physiology, bacteriology, biochemistry and pathology has lengthened the undergraduate medical curricu-

lum to an average of seven years. The greater part of this time is devoted to lectures, demonstrations and laboratory work. Even in the most progressive medical school the undergraduate student devotes only a small part of his seven years to the bedside study of disease. Already there is demanded a better general education and colleges have substituted laboratories for lecture rooms. Indicated now is the third important step in medical progress,—that is to give the student practical first-hand acquaintance with disease and casualty in the out-patient departments and wards of hospitals.

This lack of sufficient practical experience with patients during the undergraduate course has led thousands of young physicians to seek this training in postgraduate study abroad. Yet where abroad, save in one or two cities, are such opportunities presented as right at home?

Further, the doctor who is to practice in America needs familiarity more with conditions and disease here, rather than in dissimilar Europe. Yet hitherto he has been almost forced to seek postgraduate training abroad.

The German and Austrian universities realized long before this cognizance came to our American institutions,—the great stimulating influence to thorough clinical and research work induced by the presence of undergraduate and graduate students in their hospitals. Further, the work of a hospital in which there is no teaching is rarely first-class. To assure keen interest in patients, a thorough study of the cases, better treatment of patients and the diffusion of medical and surgical knowledge there must be students in our hospital wards. There lie the text-books that teach the most vividly.

There is no institution in America or in Europe that has as much to offer to the graduate student, the young physician, or the future specialist as has the Cook County Hospital of Chicago. Mutual benefits to the hospital patients and to the graduate students are numerous. From this new undertaking will result better care of the patient, increased facilities and countless contributions to the knowledge of disease. Cook County Hospital will become for the middle west what the Johns Hopkins Hospital has become for the east,—the great center for the best care of patients, for teaching and research, and professional incentive.

In Chicago and in connection with the Cook

County Hospital will be the greatest hospital resources in America. The members of the staff are teachers of the newly founded, incorporated and chartered Cook County Graduate School of Medicine.

This founding and incorporating of the Cook County Graduate School of Medicine in Affiliation with the Cook County Hospital is a welcome addition to the teaching resources offered by the city of Chicago and an enhancement to medical education everywhere.

It comes at a time when there is great need for this type of institution, with its chance for intensive work in special fields.

The Cook County Graduate School of Medicine has been organized and incorporated not for profit. It is the aim of this school to give courses ranging from two weeks to one year in practically all branches of medicine and surgery, including many of the specialties. Placed at its disposal are the enormous material contained in the Cook County Hospital, obligating the profession, for the first time in history, to make a determined effort to utilize this material for the advancement of medical science by offering to the doctors of this country extensive courses in special branches of medicine. It is presupposed, of course, that these postgraduate students will be graduates already from recognized schools of medicine and are in good standing in their community and have had sufficient basic medical education to appreciate such courses as have been arranged for and scheduled.

The Faculty of this School of Medicine will be made up entirely from the staff of Cook County Hospital. Its roster includes many of the outstanding men from Northwestern University School of Medicine, Rush Medical College, and Illinois and Loyola Medical Schools.

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#### REPORT OF THE COMMITTEE TO INVESTIGATE THE MEDICAL ADVERTISING MADE TO THE COUNCIL, SEPTEMBER 12, 1932

In the year since this committee was appointed an effort has been made to find out what has already been done in the field of medical advertising by medical organizations, business houses and public health agencies. So far as we can find out only one state organization has sponsored a campaign of paid advertising. Quite a number of county and other local bodies have

conducted brief campaigns. A good many of these have used copy furnished by one man.

Our impression is that these campaigns have been unsuccessful and unsatisfactory. Two campaigns stand out as being satisfactory, the one conducted by the Winnebago County and the other in New York City. Both had definite objectives. The men behind them knew exactly what they wished to accomplish and were apparently successful in doing it. Other campaigns have apparently been uncertain as to the results they hoped to accomplish and have apparently committed a good many errors in advertising technique.

Business organizations have done considerable advertising. The Metropolitan Life Insurance Company has spent a great deal of money every year. It is our impression that they do this as a matter of public service, feeling that they have been favored with public patronage to the point where they should do something in return for this. They appear to do it exceedingly well. As we understand it they do not know whether this brings them an actual return in dollars and cents. Several pharmaceutical houses do considerable medical advertising, particularly Parke, Davis & Co., Mead, Johnson & Co., Eastman Kodak, E. R. Squibb & Sons, Merck and others. Representatives of these firms with whom we talked were uncertain as to the returns their companies secured from this advertising, but apparently felt that it should be continued.

Various public health associations have done a good deal of advertising—the National Tuberculosis Association, the New York Tuberculosis and Public Health Association, the American Society for the Control of Cancer and the New York and Philadelphia county units of that organization. These apparently do not pay for their space. They apparently commit a good many errors in advertising technique.

The American Dental Association has appointed a committee to investigate the matter of advertising. Apparently a number of advertising campaigns by various local dental groups are now in progress. There seems to be a considerable volume of sentiment among the dentists opposed to this advertising.

The Department of Public Health of Massachusetts indulges in a good deal of publicity, but is said to be opposed to paid newspaper advertising in furtherance of their cancer clinics.



It appears that there has been no decrease in the time interval between the appearance of symptoms and consultation with the doctor. The attendance at these clinics increases with each wave of publicity and advertising.

The Public Health Institute of Chicago and the Life Extension Institute of New York have done a good deal of advertising. The stench of the Public Health Institute is in our nostrils most of the time and has probably done more than anything else to make doctors hostile toward the idea of advertising.

One publisher wrote: "My whole contention about this medicine proposition is simply this: If the medical profession itself would modify its old-fashioned code of ethics and cooperate a bit with publishers and the public, enough sentiment could be stirred up to induce Congress to go a step further and clean up medicine advertising as thoroughly as were the labels and cartons by the Pure Food Law."

One of the foremost advertising men in the country wrote: "I have always believed in the idea that doctors would some day advertise and long ago sketched out in my mind how they should go about it. Collective advertising by the medical profession could be made one of the greatest benefits to the public health of anything yet conceived. Such advertising should be directed to establishing relations between all the people and reliable doctors for the general supervision of health; people should be taught not to wait until the last moment before taking medical advice, but to keep in touch with a good physician with the idea of keeping well. Of course, the advertising that doctors do must be unselfish, and developed entirely to the value and importance of health and means of preserving it, and especially the necessity of having a family doctor to consult with and his importance in the scheme of things. Also, I think such advertising should warn against self-medication and, if possible, direct these warnings specifically against the great number of dishonest, fraudulent and misleading patent medicines."

An editor in Iowa said: "This is a noisy age and amidst it all, in grim silence, sit nearly 150,000 physicians, the quietest of all earth's inhabitants."

Advertising is educational. It is an intangible thing, yet it builds confidence in products and has made the American people happier. It

has made them want things and to want anything is synonymous with ambition. Advertising can do the same thing for the medical profession. It can sell the people what they want most of all—health. At this moment there are ten million persons in this country who should tomorrow have a physical examination. Out of 120 million of folks the doctor gets as his patients the million who are suffering pain and many of this million should have been treated years ago.

One man wrote that he was of the opinion that if medicine offered to pay for the publication of life-saving information the press would renounce any public spirited responsibility and ask that we pay for everything of a health nature brought to the attention of the public.

This committee holds no such opinion of the press. We met with the advertising managers of all the metropolitan dailies in Chicago. They were familiar with our problems but were not certain that we were ready to indulge in any advertising campaign. They were friendly, cooperative, willing to help us in investigating the possible utility of an advertising campaign by organized medicine. The advertising managers, as well as the publishers of these same papers, indicated that they would be glad to cooperate in the future with advice, suggestions, research or any other form of practical aid that they could render.

It should be pointed out that there is a rather wide-spread feeling among doctors that medical organizations ought to indulge in advertising.

As a result of its year's investigation your committee has had certain conclusions forced upon it.

1. The medical profession and the press misunderstand each other when they talk of advertising. The doctor visualizes display advertising by the individual doctor as a means of getting patients for himself. The press are apparently as strongly opposed to this idea as are most doctors. It is extremely unlikely that reputable newspapers would accept such advertising. They visualize educational advertising done by medical societies as groups.

2. We are of the opinion that at this time the Illinois State Medical Society should not indulge in any advertising campaign. Our reasons for this feeling are too numerous to enumerate here. To us they seem sufficient.

3. There is no reason for changing the code of ethics regarding advertising by doctors as individuals. This investigation did not elicit a single fact that did not substantiate the wisdom of this prohibition. The code of ethics needs no change to permit advertising by medical societies.

4. Paid advertising should be recognized by this society as an ethical medium for use by medical societies as a means of education.

5. If, and when, advertising campaigns are undertaken it will probably be done by county societies rather than by the state or national organization.

6. If a county society should wish to undertake an advertising campaign it should do so only after the objectives to be attained are well understood. It should consult advertising experts in the preparation of its copy. To do otherwise would be equivalent on the part of the doctor to self-medication by the laity. It would be equally unwise and probably more disastrous.

7. Your committee realizes that any county society might at any time be faced with a problem whose solution would be easier if advertising were used. Such a society should be free to use this medium and should understand that it has the support of the Illinois State Medical Society in so doing.

8. Closer contact with the press is desirable and undoubtedly would be mutually helpful. This contact might be arranged in various ways. Minnesota seems to have a very good arrangement. Members of the press need education in things medical and probably we are equally ignorant in matters of the press.

9. Such contact would be following the policy adopted some years ago by this society of making friendly contacts with all worth while organizations.

10. The press should be educated to look to the county societies for information regarding local questions, to the state organization for larger ones and finally to the American Medical Association for general information. Representatives of the press should meet whole-hearted cooperation when they come to these societies for information or advice. In our opinion medicine should occupy such a position of authority in this country that no reputable magazine would consider the publication of such an article as that of De Kruif in the March issue of the

*Ladies Home Journal* without consulting the Department of Public Health in its own state or the headquarters of the American Medical Association.

## AUXILIARY NEWS

Mrs. Walter Jackson Freeman of Philadelphia, our National President, has been on a tour visiting some of the State Auxiliaries. The Wisconsin State Medical Society honored our President by requesting her to address the House of Delegates at the Annual Session held in Milwaukee in September. While there Mrs. Freeman conferred with the Convention Committee for the American Medical Association with the result that tentative plans were made for the great National Convention which will be held in Milwaukee June 12-16, 1933. Won't each of you reserve these dates and plan to spend them in our neighbor state?

While in Chicago, September 24, Mrs. Freeman was kind enough to give five precious hours to a conference with her Fourth Vice-President, Mrs. Rollo K. Packard of Chicago and the Illinois State Auxiliary President, Mrs. Edward W. Mueller, of Chicago. These officers report that much valuable information was gained in this friendly conference.

## ADVISORY COMMITTEE

Dr. James H. Hutton, Chairman, 30 N. Michigan Ave., Chicago.

Dr. R. R. Ferguson, Chicago, Ill.

Dr. W. D. Chapman, Silvis, Ill.

Dr. C. J. Whalen, Chicago, Ill.

## 1932-33 PERSONNEL OF THE BOARD OF DIRECTORS OF THE WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

### OFFICERS

President—Mrs. E. W. Mueller, 1054 Loyola Ave., Chicago.

Pres-elect—Mrs. Solomon Jones, 6048 Buchanan St., Danville.

First Vice-Pres.—Mrs. A. H. Brumback, 1503 Jackson Blvd., Chicago.

Second Vice-Pres.—Mrs. S. E. Allen, Arcola.

Third Vice-Pres.—Mrs. F. P. Hammond, 6020 Drexel Ave., Chicago.

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Recording Sec'y—Mrs. W. R. Rhodes, Toledo.

Treasurer—Mrs. A. H. Baugher, 5214 Greenwood Ave., Chicago.



## COUNCILORS

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 2 Years—Second District—Mrs. A. D. Middleton, Pontiac.  
 Third District—Mrs. S. M. Goldberger, 2006 Humboldt Blvd., Chicago.  
 Third District—Mrs. H. M. Peterson, 1117 N. Le Claire Ave., Chicago.  
 2 Years—Third District—Mrs. W. R. Cubbins, 425 Arlington Place, Chicago.  
 2 Years—Fourth District—Mrs. C. H. Anderson, East Moline.  
 2 Years—Fifth District—Mrs. H. B. Henkel, 2135 Wiggins Ave., Springfield.  
 2 Years—Sixth District—Mrs. C. B. Dearborn, Mt. Sterling.  
 2 Years—Seventh District—Mrs. C. M. Jack, 541 W. Macon St., Decatur.  
 Eighth District—Mrs. H. I. Conn, Newman.  
 2 Years—Ninth District—Mrs. E. W. Burroughs, 129 West College, Harrisburg.  
 1 Year—Tenth District—Mrs. I. L. Foulon, East St. Louis. (To fill vacancy.)  
 Eleventh District—Mrs. E. R. Steen, 308 Sterling Ave., Eliet.

## CHAIRMEN OF STANDING COMMITTEES

- Organization—Mrs. Solomon Jones, Danville.  
 Press & Publicity—Mrs. F. P. Hammond, Chicago.  
 Legislative—Mrs. W. D. Chapman, Silvis, Ill.  
 Printing—Mrs. R. K. Packard, 6901 Paxton Ave., Chicago.  
 Convention—Mrs. H. B. Henkel, Springfield.  
 Program—Mrs. T. O. Freeman, 1204 Wabash Ave., Mattoon.  
 Revision—Mrs. J. H. Hutton, 7235 Coles Ave., Chicago.  
 Public Relations—Mrs. T. D. Cantrell, Bloomington.  
 Credentials and Registration—Mrs. Lucius Cole, 1117 N. Lathrop, River Forest.  
 Hygeia—Mrs. A. Edison, 1840 S. Third Ave., Maywood.  
 Finance—Mrs. A. D. Middleton, Pontiac.  
 Archives—Mrs. F. M. Mason, 1316 N. Vermilion St., Danville.  
 Hostess—Mrs. E. S. Allen, Arcola.

## THE WOMAN'S AUXILIARY AND ITS RELATION TO THE ILLINOIS STATE MEDICAL SOCIETY

MRS. T. O. FREEMAN  
MATTOON, ILL.

President's address read in Springfield at the Annual Luncheon of the Woman's Auxiliary to the Illinois State Medical Society, May 18, 1932.

Knowing there would be a number of physicians' wives present at this luncheon who come from unorganized counties and who perhaps

have not attended a regular annual meeting of the Auxiliary, I wish to take this opportunity to tell you something of what we have tried to accomplish during the past year.

First, I wish to call your attention to the quiet, unobtrusive way in which we carry on our work. Early in the year a district official of a woman's organization received a letter from the head of a cult wishing to make arrangements to put on a demonstration of his cure before his organization. This official happened to be a physician's wife, a member of the Medical Auxiliary and a Councilor, so she passed the letter on to your president with a request for instructions. The letter was sent to our advisory council which gave us the information concerning this cult with Doctor Neal's legislative report on the same and the recommendation that it be ignored. The result was that cult failed to get the publicity it was seeking.

The members of our Auxiliaries have been requested to write letters to Congressmen protesting the passage of legislation which our Medical Society considers detrimental to the best interests of the public.

We have also asked them to secure the interest of lay friends enough to write to a popular magazine concerning the harmful effects of articles on Medical matter appearing in recent numbers.

I wish at this time to pay a tribute to our health commissioner. No health commissioner of the state was ever received with as universal approval as was Doctor Hall by the Medical fraternity of Illinois. Andy Hall is loved by all the Doctors who know him and they feel that their interests will be conserved as well as the best interests of the people of the State in all health matters.

The Illinois Medical Society is outstanding in its efforts to combat the adverse effects of lay propaganda on the practice of Medicine. I have attended the National conventions for a number of years and there is not another State Auxiliary report that shows they are carrying on any great activity along these lines. Our State Medical Journal contains articles in every number in regard to the economic conditions and is making every effort to enlist the attention of physicians to the trend in this condition. Of course, if the practice of Medicine under the control of the government is the best thing for

the people, then the economic condition of physicians will have to be remodeled along these lines.

However, a great many questions will have to be considered before we can make a decision on that. The Christian religion was built on the personality of Christ and had as its basis the value of each person as an individual. Our country likewise was founded on the right of each person to develop his own individuality and for this purpose we developed our system of free public instruction.

It is only human nature to wish to have our pet schemes carried out and have every one doing things the way we think they should be done. However good the ultimate end may seem to some groups, let us consider carefully before we try to have things done en masse instead of leading people to see what is best for them and thus desiring the thing for themselves and retaining their independent Americanism. The better way, although it may seem slower and less spectacular, is through education. We advocate periodic examination by the family physician. Many mothers follow this procedure from the time before the baby's birth, and the child's health is cared for by the physician all through the early years. Then why must this child be subject to a round-up when he is ready to go to school? Let us be consistent and recognize the physician's ability to conserve the best health interests of that child. It is all right to teach people that their children should be examined and their defects corrected, and show them that the healthy child can do better school work, but I believe we can suggest a better way than by herd examinations. If a child does his school work well and his parents are satisfied with his health that is enough. If he cannot do his school work properly, then that is a matter for the teacher to bring to the attention of the parents. Any teacher can detect defective vision, poor hearing, bad posture and a habit of breathing with an open mouth. The one or more of those from which the child is suffering can be called to the attention of the mother with the recommendation that she take him to the family physician to see if some physical defect is preventing him doing good school work.

Teach parents the value of periodic examination and of preventive measures, so that they will desire them for themselves and their children.

Of course this would not involve putting on a spectacular performance in which great groups of children take part. But is it not much more important to consider the effect on the child and his reaction nervously and mentally?

Even among the poor you find very few who do not have a family physician. Little Jimmie, whose family lives partly on the county, knows who "Our Doctor" is. This family doctor is the one who should give the vaccines and immunizations and his office is the health center for every family which seeks his services. You cannot herd children into centers for immunizations, for vaccinations, examinations, etc., without making them less free, less sturdy, independent Americans.

Good health is something you cannot hand to people without their desire for it. Health is something we must earnestly desire, must strive for, and even practice self denial at times to attain.

In conclusion, let me urge every physician's wife—whether an Auxiliary Member or not, to read the Medical Journal and wake up to the problems that are facing our husbands.

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## SOCIAL INSURANCE UNDERMINES NATIONAL CHARACTER—

(Continued)\*

Someone has said, "Happy is the nation that has no history." Whoever said this probably had in mind the old type school history textbooks which contained little besides records of military campaigns, revolutions and international wars. Viewed from that standpoint the epigram was unquestionably true. Today a more suitable epigram would be—Happy is the nation that has no need for charitable organizations or devices. The ideal society would be one in which every individual can and does secure a decent living for himself and those dependent upon him by the "sweat of his brow," or by mental exertion, or, what would be better still, by the application of both brain and brawn.

There is no fundamental difference between outright charity and social insurance; both undermine character; both have a tendency to pauperize the citizen, for both rob the individual

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\*Ninth installment of Dr. Edward H. Ochsner's articles on Medical Economics.



of his self-reliance and his enthusiasm and his urge for industry; they both penalize the honest, frugal and industrious and favor the lazy shifters and immoral because they inevitably favor the unfair and inequable distribution of the results of labor; both encourage malingering and favor neuroses; both often give something for nothing or much for little, which is the basis of parasitism, and both delay the ultimate goal when every man shall reap the fruits of his labors.

The man who once accepts charity, particularly if it is not a case of dire necessity, is not quite so fine a man as he was before. He has lost something that nothing can replace. War, pestilence, or general disaster may reduce any one of us to want and penury and then there is no disgrace in accepting aid from our fellow-men; but under ordinary circumstances no able bodied individual with fair intelligence and health has any moral right to that which he has not honestly earned.

The proponents of Compulsory Health Insurance will undoubtedly say that it was with the view of saving men and women from the stigma of being paupers and the evil effects of pauperism that this and other phases of social insurance were brought forward. Exactly, but what has actually happened they do not foresee. As is so generally the consequence when a law is enacted on an emotional basis instead of on sound reasoning and adequate experience, an element was introduced even worse than pauperism; besides, pauperism was not relieved nor even mitigated.

There are two distinct types of paupers. The mentally and morally subnormal who are not in any way injured by the stigma of pauperism and who still remain paupers because no Compulsory Health Insurance law so far devised includes or can include them. They are the "unemployables" whom industry cannot use. The second class are old people who in their youth have been lazy or extravagant, or who have lost their savings through poor investments. Those who have been lazy and extravagant are simply reaping their just reward and have no one to blame but themselves and it is morally wrong for the government to tax the thrifty and industrious for their support except in almshouses. The way to deal with the problem of the invest-

ment sharks is to teach the pupils in our high schools something about investment and to hang the gold brick and non-secure security salesmen, or if this is too drastic devise some other way of putting them out of business.

Compulsory Health Insurance has simply added parasitism to pauperism. The effect upon the insured and upon the public in general is almost as bad as it is on the medical profession. It encourages malingering and deception; it puts a premium on sloth and shiftlessness and a penalty on industry and integrity and thrift: it robs industry of its just reward; and it encourages parasitism.

One of the first effects observed after its introduction in Germany was the changed attitude of a large group of the insured. Before the law went into effect, patients came to their physicians for the relief of real ailments; after it went into effect an ever-increasing number came with imaginary and simulated ailments for the purpose of getting the sick benefit stipend or free hospital care. The latter was particularly the case in the fall of the year when many came complaining of things that were difficult to diagnose and hence difficult to exclude such as spinal concussion, neuritis, and vague abdominal pains. As time has passed this abuse has gradually grown to appalling proportions as the following statistics indicate. Dr. Potts of Oak Park cites the following:

In a check-up of Brawnschweig, two thousand eight (2,008) people on the sick list were asked to report for a check-up examination. This induced eight hundred sixteen (816) to report for work at once, two hundred eighty-nine (289) were found fit for work and only nine hundred three (903) or less than forty-five (45) per cent. of those receiving sick money were actually sick. The proponents of Compulsory Health Insurance will undoubtedly say this is an individual instance. But not so. This abuse is so almost universal that it is seriously affecting the general honesty of the rank and file of the citizens of those countries where it has been in operation the longest. Social insurance is one of the major factors which has brought Germany to the very verge of economic ruin, an dworse than even that—it is undermining the fundamental honesty and moral integrity of the German citizen.

## EDUCATIONAL COMMITTEE

June, July, August and September, 1932

## SPEAKERS' BUREAU

42—Popular health talks were given by members of the State Medical Society before following groups:—

Woman's Auxiliary.  
Graduation exercises nurses.  
Woman's Club.  
School Assembly.  
4-H camp of boys and girls.  
Men's club of church.  
Beauty operators and hair dressers.  
Rotary Club.  
Teachers Institute.  
Kiwanis.  
Boys' School—State Fair.  
Household Science Clubs.

List of new suggested topics for health talks sent to all clubs that used our Speakers' Bureau during the past twelve months.

The Handbook of the Illinois Congress of Parents and Teachers carries an announcement of the services obtainable through the Educational Committee of the Illinois State Medical Society.

## SCIENTIFIC SERVICE

29—Scientific programs were arranged for county medical societies.

Kane County—Aaron Arkin, Heart Disease.

Jackson County—Hugo R. Rony, Obesity and Leanness.

Sherman Hospital, Elgin—Eugene B. Perry, Prosthetic Resection.

Randolph County—W. K. McIntyre, St. Louis, Scientific Study of Pruritus Ani.

LaSalle County—Henry Schmitz, Cancer; Peter A. Nelson, Diagnosis and Treatment of Oral Cancer; Joseph E. F. Laibe, Diagnosis and Treatment of Carcinoma of the Urinary Bladder; Herbert E. Schmitz, Diagnosis and Treatment of Cancer of the Uterine Cervix.

Franklin County—F. Z. Havens, Rochester.

Aurora Medical Society—J. R. Ballinger, Medical Jurisprudence.

Whiteside County—J. C. Reddington, Focal Infections; George Thomas Palmer, Pulmonary Tuberculosis in the Light of the Present Conditions.

Warren County—Philip Kreuscher, Crippled Children's Clinic.

Elgin—J. D. Willems, Industrial Surgery.

Carroll County—S. M. Feinberg, Allergy.

Paris Hospital—Henry T. Chickering of New York, Acute Infections of the Respiratory Tract, Including Lobar and Bronchial Pneumonia.

Schuyler County—George Ewell, Urological problems.

Schuyler County—H. E. Marsh, Clinic of Internal Medicine.

Schuyler County—Arnold Jackson, Treatment of Cholecystitis.

McLean County—Henry T. Chickering, New York, Prognosis and Treatment of Lobar Pneumonia.

Will-Grundy County—S. M. Feinberg, Hay Fever with Special Reference to Developments in the 1932 Season.

McHenry County—W. A. Evans, Public Health.

Franklin County—Harold M. Camp, Why a Medical Society.

Franklin County—R. K. Packard, Medical Economics.

Franklin County—Andy Hall, Health Problems of Illinois.

Will-Grundy County—William L. Brown, Cancer.

Jo Daviess County—J. R. Ballinger—Medical-Legal Medicine.

Carroll County—Clement L. Martin, Current Proctologic Problems of General Interest.

Carroll County—Lena K. Sadler, Mental Hygiene and Adolescence.

Will-Grundy County Medical Society has asked the Committee to schedule speakers for all of its weekly meetings from September first to January first.

Rock Island County Medical Society has suggested speakers for its monthly meetings to the Committee.

## DIRECT ASSISTANCE TO COUNTY MEDICAL SOCIETIES

Letters were sent to physicians in the following counties announcing special medical meetings:

730—LaSalle and adjoining counties.

218—Randolph and adjoining counties.

327—Franklin and adjoining counties.

151—Perry County.

1,426

Letters sent to all county secretaries with reprint of Dr. Foley's article "Do the Veterans Get Something for Nothing?"

Letters outlining assistance we might give in Chicago sent to all officers of Branch Societies of Chicago Medical Society.

Report on care of pauper cases sent to county secretaries requesting this information.

## RADIO

170—Radio talks were given from WGN, WJJD and WAAF.

These talks were all given by Chicago Medical Society members and were approved by the Educational Committee.

Most of the subjects were appropriate to the season as shown by the following:

R. J. Gordon, Convalescent Care.

S. L. Governale, The Disabled Gall Bladder.

Irving F. Barnett, The Nose, an Indicator of General Health.

Cyril Hale, Insomnia.

Russell D. Robinson, Some Common Diseases Which May Result from Swimming.

W. A. Hendricks, Cancer.

E. C. McGill, Normal Pregnancy.

Frank J. Smejkal, Tuberculosis.



L. L. Mayer, The Cross-Eyed Child.  
 M. L. Leventhal, Childlessness.  
 Harry Jackson, Skull Fractures.  
 M. P. Gethner.  
 Alex Hershfield, A Sane View of the Insane.  
 Leonard Shpiner, Glands of Internal Secretion.  
 W. O. Thompson, The Thyroid Gland.  
 C. J. Drueck, Backache.  
 I. Pritikin, Tuberculosis of the Skin.  
 Alex Hershfield, Mind Health.  
 Carl A. Johnson, What Research Has Done for Heart Disease.  
 W. L. Waner, Cancer of the Stomach.  
 Elmer L. Kenyon, Stammering.  
 Howard M. Sheaff, Protection Against Blood Vessel Disease.  
 Joseph Welfeld, The Use and Abuse of Cosmetics and Dyes.  
 Vernon M. Leech, Eye Hygiene.  
 Allan J. Hruby, Changing Picture of Childhood Tuberculosis.  
 W. W. Furey, Value of X-Ray.  
 A. M. Serby, Gall Bladder Disease.  
 Carroll Eugene Cook, Heat Stroke or Sun Stroke.  
 Clarence K. Jones, Abdominal Pain.  
 Charles N. Pease, Congenital Deformities.  
 Robert Coombs, Appendicitis.  
 Leon M. Beilin, The Cure and Curability of Syphilis.  
 Arthur Stenn, Summer Diarrhea.  
 Cyril J. Larkin, Superficial or Surface Infections.  
 Ben E. Fillis, A Brief Consideration of the Urinary Tract.  
 W. A. Newman Dorland, The Cancer Menace.  
 Andrew McNally, Enlargement of the Prostate.  
 Raymond H. McPherron, three talks on The Evolution of Medicine.  
 L. Feldman, The Heart in Middle Age.  
 Leon Unger, Hay Fever.  
 Leo L. Mayer, The Cross-Eyed Child.  
 C. J. Lundy, The Prevention of Heart Disease.  
 G. Guibor, Some of the Things We Know About Hay Fever.  
 Joseph K. Narat, Goiter.  
 Walter Bayard, Early Care of Cross Eye.  
 Robert W. Edwards, High School Health.  
 M. M. Kunde, Endocrine Influence on Growth and Development.  
 J. W. Hayden, The Ear.  
 Harold I. Meyer, Have You a Goiter?  
 Earl S. McRoberts, Eyes and Nose in Ragweed Season.  
 W. A. Rosenberg, Ringworm.  
 S. M. Feinberg, Hay Fever, Suggestions to Sufferers.  
 Raymond Green.  
 I. Pritikin, Personal Hygiene.  
 Charles J. Drueck, Cancer of the Bowels.

The Educational Committee has been offered a fifteen minute period over station WAAF, owned and operated by the Publishers of the "Corn Belt Farm Dailies" which include the Chicago Daily Drovers'

Journal. The first talk in the series was given on Friday afternoon, September 23, at 2:30 o'clock.

Radio Station WJJD is getting out a radio book and we have been invited to prepare an article on the work of the Illinois State Medical Society for publication in this book.

The librarian of the Legler Branch of the Chicago Public Library has asked that the Committee send her each week the radio schedule which she may post with other "Important Events of the Week."

#### PRESS SERVICE

- 2,554—Articles released to Illinois newspapers.
- 1,658—Regular Press Service.
- 108—Monthly Press Service.
- 13—Diphtheria articles to newspapers of Hamilton, Hardin, Johnson, Moultrie, Massac, Saline counties.
- 52—Typhoid articles to newspapers of Christian, Pope, Crawford, Edgar, White, Franklin, Union, Jackson, Williamson counties.
- 98—Announcements of Alumni banquet Illinois Wesleyan University, Dr. Ray Lyman Wilbur speaker.
- 40—Newspapers announcing Carroll County Medical meeting.
- 60—Newspapers announcing Franklin County Medical meetings.
- 200—Newspapers announcing LaSalle County Medical meetings.
- 45—Newspapers re meeting Randolph County Medical meeting.
- 116—Announcements of Schuyler County Medical Society.
- 54—Newspapers re meeting Perry County Medical Society.
- 99—Newspapers announcing Logan County Medical meeting.
- 11—Community newspapers re meeting Branch Societies, Chicago Medical Society.
- 33—Health education articles written and approved: Superficial or Surface Infections.  
 Cure and Curability of Syphilis.  
 Cancer of the Bowels.  
 Season for Infantile Paralysis.  
 Primitive Medicine.  
 What Is Undulant Fever?  
 Acidosis.  
 Hippocrates.  
 "Sniffles."  
 Goiter or Graves' Disease.  
 Care of Normal Skin.  
 Paralysis.  
 How to Avoid Cancer.  
 Lip Reading.  
 Vacation Is Over.  
 Whooping Cough Prevalent.  
 Avoid Gallstones.  
 Congenital Deformities.  
 Stammering.  
 Heat Stroke or Sun Stroke.

Unconsciousness.

Tuberculosis—A Disease of Youth.

Health and Disease Fallacies.

Prone Pressure Method.

Appendicitis as a Surgical Disease.

Summer Diarrhea.

More Health and Disease Fallacies.

Insulin and Diabetes.

Your Heart.

Surgery Today.

Cold Weather and Winter Ailments.

Success Begins at School.

Your Feet.

We have been asked to furnish a health column to the leading Italian newspaper of Chicago—"L'Italia." A member of the Chicago Medical Society is translating our material into Italian.

### COOPERATION WITH OTHER GROUPS

The Chicago Woman's Aid—Chairman of the Committee on Public Health of this organization has asked the Educational Committee for "some interesting work for us to do to start this fall and continue doing this year. Our object is to be of some real service on a Public Health project and we should be interested in hearing about what you have to give us."

The Illinois Federation of Women's Club—Dr. Lena K. Sadler of Chicago has been appointed Chairman of Public Health, Child Hygiene and Mental Hygiene for the Federation. She is extremely anxious that health work undertaken by the women's clubs meet with the approval of the county medical societies. For this reason, she is asking her local chairmen to confer with the local county medical society secretary and discuss health problems which the physicians feel deserve the attention and support of club women.

The Woman's Auxiliary—Of the State and county societies have appealed to the Educational Committee for speakers and for mimeograph services.

University of Illinois, Extension Service—Director has asked the Committee to furnish short educational articles to the Home Bureau Advisers of 33 counties. These articles will be used at the monthly meetings.

Settlement House of Chicago—Director of Boy's activities has asked the Committee to help in health education by furnishing moving picture films, literature, posters and speakers on the health subjects to be emphasized during the winter.

### MISCELLANEOUS

Physicians have made good use of our package library service and when we have not had the requested material in our files we have had the assistance of the American Medical Association library.

We have been invited to furnish an article on the work of our committee for publication in *Medical Economics*.

Through the courtesy of Mr. Thomas G. Hull, Ph. D., we were able to present our work in connection with the A. M. A. exhibit at the State Fair, Springfield.

The following statement appeared in the Springfield State Journal, August 25, 1932:

"There is also a presentation of the facilities of the Illinois State Medical Society for doing educational work throughout the state. Literature, public speakers, radio lectures, publicity material and reading matter for debates and similar purposes may be obtained through this service."

Respectfully submitted,

JEAN McARTHUR,

Secretary.

### MEDICAL BROADCASTS FROM CHICAGO STATIONS

WGN—416.4 meters and 720 kilocycles.

11:50-12:00 a. m.:

Tuesday—Illinois State Medical Society.

Wednesday—Chicago Tuberculosis Institute.

Thursday—Illinois Society for Mental Hygiene.

Friday—Chicago Dental Society.

Saturday—Illinois State Health Department.

KYW—

3:15-3:30 p. m.:

Monday, Tuesday, Wednesday, Thursday, Friday—Chicago Department of Health, Dr. Herman Bundesen or member of staff.

WCFL—970 kilocycles.

10:15-10:30 a. m.:

Thursday—Dr. Herman Bundesen, Chicago Department of Health.

WMAQ—670 kilocycles.

Dr. Fred O. Tonney for Chicago Department of Health.

WJJD—1130 kilocycles and 265.3 meters.

11:30-11:45 a. m.:

Every morning except Sunday—Chicago Pediatric Society and Illinois State Medical Society—"Young Mothers' Hour."

12:00-12:15 p. m.:

Monday, Wednesday, Friday—Illinois State Medical Society.

WBBM—770 kilocycles and 389.4 meters.

10:45-10:50 a. m.:

Monday, Wednesday—American Medical Association.

10:45-11:00 a. m.:

Saturday—American Medical Association.

WLS—870 kilocycles.

One talk a week from October to May by physicians from the College of Medicine, University of Illinois.

WAAF—2:30-2:45 p. m.:

Friday—Illinois State Medical Society.

### A BADGE OF IGNORANCE

If a dictator decrees vaccination, even the conscientious objector bares his arm. But the freeborn American citizen, if he chooses, may bear the proud scars of smallpox throughout his independent life, a monument to his ignorance and self-conceit.—Kendall Emerson, M. D.



## Original Articles

### THE DIAGNOSIS AND TREATMENT OF MENSTRUAL IRREGULARITY OF FUNCTIONAL ORIGIN\*

FLOYD E. KEENE, M. D.  
PHILADELPHIA, PA.

Abnormal menstruation may be the chief expression of diversified pelvic lesions of uterine, tubal or ovarian origin, but it may also occur in the absence of any demonstrable pelvic pathology, and such menstrual irregularities are included under the caption of functional uterine bleeding. For years its etiology was obscure and many theories were advanced to explain it. These had to do chiefly with alterations in the uterus, such as chronic endometritis, fibrosis of the myometrium, arteriosclerosis, malpositions, subinvolution, et cetera. In only rare instances was a possible ovarian origin given due consideration, although as long ago as 1882 Brennecke called attention to certain ovarian characteristics associated with a hyperplastic endometrium which he termed endometritis ovarialis. Gradually, with our increased knowledge concerning the physiology of menstruation, the uterine changes above mentioned have been largely thrown into the discard, until at present the view is generally accepted that endocrine disturbances are the chief factors in the production of these menstrual anomalies and that alterations in the uterus are but an expression of this deranged hormonal activity.

There is no chapter in gynecology of more intense interest nor one that has yielded more brilliant investigative results than that dealing with the physiology of menstruation. While there is still much to be learned, the contributions of the past few years have added enormously to our understanding of this vital function and, as a corollary, to the explanation of the varied clinical manifestations associated with perversion of this function.

The modern conception of normal menstruation may be briefly summarized as follows: Of the various hormones elaborated by the anterior pituitary, two are of prime importance in that, as the result of their stimulating effects, the functional activities of the ovaries are inaugurated. Prolan A is responsible for the ripening

and maturation of the Graafian follicle and Prolan B activates the luteinization of the follicle with the formation of the corpus luteum. So important is this function of the anterior pituitary that it has been aptly termed by Zondek the "motor of the ovary." With the occurrence of pregnancy, enormous amounts of the anterior pituitary hormones, particularly Prolan B, are elaborated, and it is upon this phenomenon that the Ascheim-Zondek and Friedman pregnancy tests are based. Stimulated by Prolan A, the Graafian follicle begins to ripen shortly after menstruation has ceased and the process is completed with rupture of the follicle on about the twelfth to the fourteenth day of the intermenstrual period. Under the influence of Prolan B, the follicle is transformed into the corpus luteum, which gradually increases in size and maturity until shortly before the onset of the next menstrual period. Both the follicle and the corpus luteum are essential to the preparation of the endometrium for normal menstruation and for the reception and implantation of the impregnated ovum. Each of these bodies possesses its specific hormone; that of the follicle, known as oestrin, folliculin, theelin or the female sex hormone, is responsible for the earlier proliferative, non-secretory phases of the endometrium and prepares the way for the final secretory or premenstrual phase, which can occur only in the presence of the corpus luteum hormone, progesterin. In a measure, these hormones are antagonistic in that progesterin inhibits follicular activity, but, on the other hand, the sensitizing action of oestrin is essential as a preliminary process to the final consummation of the endometrial changes characterizing the secretory phase which progesterin alone can induce. If pregnancy has not occurred, the corpus luteum undergoes retrogression and menstruation follows with exfoliation of the superficial layer of the endometrium.

Based upon these well established facts, theories as to the causation of irregular menstrual bleeding of functional origin can be readily formulated and clinical as well as experimental investigations have proven the correctness of these deductions. In brief, it can be stated that such bleeding is due to some defect in the rhythm of pituitary function or to alteration in its hormones which affect the follicular or corpus luteum apparatus of the ovary. With

\*Presented before Joint Session, Illinois Medical Society, May 17, 1932, Springfield, Ill.

normal pituitary function, a defective ovarian response to its hormonal stimulation may lead to the same result.

All cases of functional uterine bleeding cannot be ascribed to identical hormone defects, but in the majority, excessive or prolonged follicular stimulation and diminished or absent corpus luteum activity are characteristic features. Evidence of these facts is afforded by examination of the ovaries, which contain single or multiple follicular cysts of varying size, and the corpora lutea are not present or exist as immature structures. According to Schroeder, the follicular cysts represent an abnormal persistence of the ripening follicles in which the ovum continues to live but ovulation does not occur; Meyer, on the other hand, ascribes them to follicular atresia incident to premature death of the ovum. In either event, corpus luteum formation is prevented and prolonged activity of the follicles results.

Clinical as well as experimental evidence is at hand to warrant the assumption that the ovarian changes are ascribable to some alteration in the function of the hypophysis. Whether they are the expression of hyperfunction, hypofunction or some altered relationship existing between the hormones elaborated by the anterior pituitary remains a controversial subject.

The characteristic ovarian picture as well as the clinical fact that cessation of uterine bleeding results either from lessening pituitary activity by irradiation or from supplying it by the administration of the luteinizing hormone, indicate a lack of coordination between the two hormones or the excessive elaboration of the one at the expense of the other.

The endometrium responds to its perverted hormonal stimulation by failure to pass through its normal cyclic transformation, remaining more or less stationary in the proliferative stage; the premenstrual secretory phase and exfoliation which are dependent upon corpus luteum activity and regression are lacking. In a small proportion of cases, the proliferative changes become so extensive as to assume the form described by Cullen and Novak as hyperplasia, which is characterized by a marked thickening of the membrane due to an increase in glands as well as stroma. The glands are irregular in size and contour, they are often dilated forming the so-called "swiss-cheese" pattern, and

secretion is absent. This picture of the non-cyclic endometrium is by no means found in all cases of functional bleeding, which suggests that some factor other than the ovary is active in its production and probably originates in the pituitary or thyroid.

*Clinical Characteristics.* Functional bleeding may occur at any age from puberty to the menopause, but is most common during the fifth decade of life.

#### AGE INCIDENCE

Age	No. Cases	Percentage
Less than 20 years.....	20	5%
20-30 years .....	87	22%
30-40 years .....	98	25%
40-50 years .....	158	40%
50-60 years .....	31	8%

The fact that functional bleeding may occur after the menopause has been established is of biological and clinical interest. In our study of 394 cases, twelve had passed the menopause and the endometrium in two showed hyperplasia. If the prevailing conception is correct that endometrial hyperplasia is due to persistent follicular stimulation, it is difficult to explain why it should occur in the post-climacterium when the ovaries are atrophied and functionless. Taylor suggests that these hyperplastic changes are "but remnants of a typical hyperplasia persistent since the menopause," but it seems unlikely that this structure alone should escape the atrophy found in other pelvic organs. That it may be of hormonal origin is suggested by Frank's statement that "in a number of women long past the menopause the hormone content of the blood was exactly as we find it in young menstruating women." In this connection the experimental work of Hartman and his associates is particularly suggestive since they have shown that in castrated animals, hyperplasia and uterine bleeding can be produced by administration of the hormones of the anterior pituitary. Fluhmann's demonstration of increased pituitary activity after the menopause adds another link to the chain of evidence favoring the hormonal origin of certain cases of post-climacteric bleeding.

The following analysis of our cases demonstrates the many different types of bleeding which may occur:

#### TABULATION OF THE TYPE OF FUNCTIONAL BLEEDING IN 383 PATIENTS

Menorrhagia—148 patients—38%—

A—Profuse menstruation with normal intervals...51—13%



B—Profuse or prolonged menstruation with shortened intervals .....	97—25%
Metrorrhagia—235 patients—62%—	
C—Totally irregular bleeding.....	65—17%
D—Regular periods—followed by continuous bleeding .....	27— 7%
E—Irrregular periods—followed by continuous bleeding .....	48—13%
F—Progressive menorrhagia to metrorrhagia.....	34— 9%
G—Amenorrhea followed by continuous bleeding.....	45—12%
H—Mid-interval bleeding with normal periods.....	16— 4%

Although as a group, the metrorrhagias predominate, the profuse or prolonged periods with shortened intervals form the most common individual type, corresponding with Shaw's findings in his analysis of 200 cases. Another type frequently encountered is that in which the periods exhibit no semblance of regularity either in the appearance, duration or quantity of bleeding; they may appear at long or short intervals and the flow is at times profuse, at others small in amount. Of particular interest from the diagnostic standpoint, as will be mentioned later, is the type characterized by a succession of normal periods, a few weeks or months of amenorrhea, and the onset of continuous bleeding.

In reviewing our cases of functional bleeding, we have observed that many patients give the history of menstrual irregularity often dating back to the time of or shortly after puberty. This may be expressed by intervals of amenorrhea, prolonged or unduly profuse periods, a shortening of the inter-menstrual interval and most commonly, perhaps, a life-long tendency to menorrhagia.

With but little or no demonstrable pathology, one is at a loss to explain satisfactorily the profuse and, at times, alarming hemorrhage which functional disturbances alone may produce. Schroeder, Fluhmann and others ascribe the bleeding to areas of necrosis or injury to large superficial vessels in the endometrium; Novak states that increased permeability of the blood-vessels must be considered as a possible cause, but seems more inclined to ascribe it to some extra-pelvic influence, what he terms the "bleeding factor" with which the hypophysis may be intimately concerned.

Pelvic pain is rarely an associated symptom in uterine bleeding of the purely functional type; dysmenorrhea is likewise uncommon but may accompany profuse bleeding with the passage of clots. When pain is present, some organic lesion, such as chronic adnexal infection or endometriosis should be suspected.

The characteristic feature of the pelvic examination in cases of functional bleeding is the absence of gross pathology. Often, however, certain minor changes are detected. The cervix may be somewhat softened, slightly dilated and faintly discolored; increased succulence may also be manifest in the vagina. Moderate, diffuse uterine enlargement is not uncommon and in a considerable proportion of the cases one or both ovaries will be found larger and perhaps more tender than normal, due to the presence of single or multiple follicular cysts.

The diagnosis of functional bleeding is usually a simple matter; irregular menstruation with normal pelvic findings can be explained in no other way. A small submucous myoma, deeply placed and concealed by the overlying uterine musculature, may give rise to identical symptoms and may easily escape detection. However, its presence is usually indicated by irregularity in the contour and consistency of the uterus or the curette may reveal its protrusion into the endometrial cavity. Irregular bleeding is commonly associated with a chronic adnexitis, and is due in large part to defects in ovulation incident to a peri-oophoritis. A history of previous acute pelvic infection, the characteristic stigmata of chronic gonorrhea, slightly enlarged, adherent adnexae and pain usually point the way to a correct diagnosis. Even the minor lesions of endometriosis may give rise to irregular bleeding, but one or both ovaries may be enlarged, nodular and adherent; small nodulations are often palpable in the cul-de-sac and an acquired dysmenorrhea of the menstrual or premenstrual type is a characteristic symptom. In each of the lesions just mentioned, altered ovarian function is a potent factor in the production of irregular menstruation, but this functional disturbance is secondary to or associated with an organic lesion, which often requires treatment of an entirely different nature from that appropriate to true functional bleeding, hence the importance of their differentiation.

As already stated, softening, dilatation, and even slight discoloration of the cervix may exist in these cases and when such findings are associated with a history of amenorrhea followed by prolonged bleeding, differentiation from an early miscarriage is difficult or even impossible without a curettage. A polycystic ovary or a single follicular cyst is not uncommon in func-

tional bleeding; rarely, such ovaries are exquisitely tender and may produce sharp attacks of pain. Under these circumstances, a history of amenorrhea and continuous bleeding presents a clinical picture so closely simulating that of tubal pregnancy that the exact nature of the lesion can be ascertained only by an exploratory incision.

Carcinoma of the fundus is essentially a post-menopausal disease, but an analysis of the cases from our clinic made by Norris and Vogt shows that 17 per cent. were of pre-menopausal age. Its differentiation from functional bleeding is made possible only by a diagnostic curettage and examination of the curettings by a pathologist thoroughly familiar with the manifold histologic pictures which the endometrium may present under both normal and pathologic conditions. Many a uterus has been removed needlessly under the mistaken diagnosis of malignancy, made by a pathologist unskilled in this particular field.

In rare instances, functional bleeding occurs as a post-menopausal manifestation, but this diagnosis should be made with reservation and only after the possibility of uterine or adnexal carcinoma has been eliminated by all available methods of examination. In this connection, granulosa cell carcinoma of the ovary deserves particular mention, since it often develops after the menopause and is characterized by a return of bleeding and hyperplasia of the endometrium.

Irregular menstruation may be but the local expression of some constitutional condition such as cardiovascular disease, chronic nephritis, hypertension, blood dyscrasia, et cetera, and such possibilities should be eliminated before the diagnosis of true functional bleeding is made. Diminished activity of the thyroid gland may produce menorrhagia, but, conversely, our experience has shown that patients with functional bleeding usually present no striking evidence of thyroid abnormality. In the functional hemorrhages of adolescents, Plass emphasizes the fact that even minor degrees of hypothyroidism are significant, and that the "cautious use of thyroid extract, even when the basal metabolic rate is not particularly low," often controls the bleeding.

A discussion of the diagnosis of functional bleeding would be incomplete if we did not refer to the various hormonal tests which have been elaborated during recent years. These tests are of the greatest scientific value, they

have contributed largely to our present knowledge of female sex physiology and pathology, and their further elaboration will doubtless clarify many phases of the subject which are now obscure. We consider these studies of such importance that a department devoted entirely to this work has been established in our clinic at the University Hospital. To many physicians, these facilities are not available and the question must naturally arise—are such tests necessary for the diagnosis and treatment of functional bleeding? This question can be answered in the negative. We believe a curettage is advisable in most cases, particularly in women of menopausal age. By this means, evidence is obtained which permits of certain deductions concerning the hormone at fault, the question of malignancy is definitely answered, and in a few cases the procedure will be of therapeutic value.

In many of the milder forms of functional bleeding, the blood loss is insufficient to require treatment or it may respond to medication so well known as to make its discussion unnecessary. Change of climate, occupation or mode of living will occasionally be followed by a resumption of normal menstruation, or the menstrual irregularity may cease for no explainable reason. In cases of profuse or prolonged bleeding, these remedies are usually of little or no avail and more drastic measures are called for to stop the blood loss. We would call attention to the value of blood transfusion in the treatment of adolescent hemorrhage. Our own experience, together with that of others reported in the literature, shows that this measure may induce a temporary amenorrhea or restore the menstrual periods to normal.

For many years curettage was advocated on the erroneous assumption that the cause of the bleeding lay in the endometrium. Although our present-day knowledge casts discredit upon this procedure as a therapeutic measure and explains the frequent failures attending its use, the fact remains that curettage may be efficacious and has a place in the treatment of functional bleeding. This applies particularly to the hemorrhage of young women in whom more drastic measures such as irradiation or hysterectomy are undesirable.

The advent of radium has contributed in large measure to our therapeutic armamentarium, for



by its use the functional hemorrhages of the menopause can be readily controlled and the risks of hysterectomy are avoided. At this age, sterility and loss of ovarian function are matters of no great concern and a full menopausal dose can be given. With younger women, however, the problem is entirely different, for here cessation of ovarian function may be attended by dire consequences. When other measures have failed, we have frequently applied small doses of radium in young women, and our results have been such as to warrant its continuance until a better method is available. Should a submenopausal dosage of radium fail to control the bleeding, a hysterectomy with conservation of the ovaries is preferable to more intensive irradiation; with operation, ovarian function is maintained; with irradiation it may be permanently destroyed.

Curettage, irradiation and hysterectomy are all far from ideal procedures in the treatment of functional bleeding, but until recently no other measure has proven of sufficient value to displace them. Heretofore, with the exception of thyroid extract, organotherapy has been futile, but during the past year hope has been aroused by the reports of Novak and others that at last a preparation has been found which gives promise of success. This preparation is obtained from the urine of pregnant women which is rich in the anterior pituitary hormones; theoretically, its administration should stimulate the process of luteinization in the ovary which is characteristically absent in functional bleeding. In his original report, which appeared during the past year, Novak states that in 44 out of 51 cases the bleeding was checked; he tells me that subsequent experience in a much larger number of patients has been equally satisfactory. Mazer of Philadelphia, whose contributions to this field of investigation are outstanding, considers this anterior pituitary luteinizing substance as a specific in the treatment of functional bleeding in young women. In the menopausal age, however, the treatment has not been successful, since it failed to control the bleeding in 13 out of 15 patients. Based upon these favorable reports of Novak and Mazer, as well as our own experience in a small number of cases, we are encouraged to hope that with this substance we have at our disposal a measure which will be of value in solving the heretofore difficult problem of relieving

the functional hemorrhages of adolescents and young women.

## PRIMARY GLAUCOMA MANAGEMENT\*

MICHAEL GOLDENBURG, M. D.†

CHICAGO

It would be well to first define what we mean by primary glaucoma. This would appear to be a simple question and yet any definition offered would be found wanting in some way or another. The probabilities are, that all types of glaucoma with the possible exception of the non-congestive or so-called simplex type are secondary, but secondary to what, is an open question difficult to answer. The classical definition of secondary glaucoma will probably better define what is meant by the primary form. Therefore, for the purpose of this paper we will discuss that form of elevated intra-ocular pressure for which we find no manifest evidence of ocular disease, trauma or neoplasm and apply the term primary glaucoma to this group.

Of this primary form we have two types, the non-congestive or simplex type and the congestive or inflammatory type.

With this classification in mind we can proceed to the object of this paper.

In the treatment of this form of glaucoma one of two methods is open to us, that is surgical and non-surgical. The non-surgical treatment has many adherents and some even go so far as to say that a case that responds to surgery would have done as well under a non-surgical regime, and those that do not respond to non-surgical methods will not respond to surgery. This, is of course open to much debate, but is surely not the opinion of most authorities. It of course depends on what you mean by a cure, the relief of the immediate or permanent symptoms, or the removal of the cause. The patient is pertinently interested in the relief of the symptoms and the probable prognosis. The relief of symptoms in some cases can be accomplished without surgery, but the responsibility of a prognosis in these cases few physicians of experience are willing to assume. Many physicians feel that non-surgical management is indicated in the non-conges-

\*Read before Section in Eye, Ear, Nose and Throat. Illinois State Medical Society, Springfield, May 17, 1932.

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tive type (glaucoma simplex) and in the early stages of the congestive type (inflammatory) that is, if the tension remains within reasonable normal limits and the perimetric fields do not show progressive contraction. If we were assured of intelligent cooperation of the patient, one might accomplish much, but it is regrettable that this cooperation is neither dependable nor intelligent even in the so-called intelligent classes. And as far as the average patient is concerned it may be readily dismissed; therefore, to advocate a non-surgical regime one must thoroughly impress the patient with the seriousness of the condition and the probable prognosis.

*Non-surgical Management:* What may we hope to accomplish and what may we expect? Much in some carefully selected cases, but very little in the vast majority. Given a case in the very early stages, in an individual between the late 30's and late 40's an attempt should be made to control the condition by this form of management, but only after making a very extensive study of the individual case. By that I mean not merely an ophthalmic study, but a complete physical and laboratory investigation. (The highest type of cooperative study in these cases is necessary.) It is naturally understood that any pathologic findings should be corrected if possible. I do not wish to go on record, as saying that every possible source of focal infection should be removed, but I do wish to emphasize that such foci must be seriously considered. In addition to such corrections one should give some thought to the appetite of these people, physical, emotional and dietary. One may say that a non-stimulating diet, probably favoring the carbohydrates in preference to the proteins would be indicated. However, we know so little about diet in these cases that it would be well to make no definite statements, and what is said, should be only done in the form of suggestion. We may say quite definitely that dietary abuses should be corrected. In regard to the emotions, again much may be said and yet we have no information that warrants a positive statement. We do know that the emotions have a marked influence on the endocrine functions or as some contend that the endocrines influence the emotions, that particular phase of the question is debatable, but the sum total of the question

is accepted as influencing glaucoma. It is interesting to note, in the female at least, how frequently one can trace the prodromal symptoms of glaucoma to the menopause stage. That the endocrines may be of much import in the precipitation of glaucoma symptoms one may concede, but unfortunately we still lack the information necessary to say that this or that or any group of glands are at fault.

*The ophthalmic study* resolves itself into careful tonometric, perimetric, and ophthalmoscopic investigation and recording. Ophthalmoscopic examination should be made with a dilated pupil. If you are timid you may use a solution of euphthalmine, I prefer the use of homatropine if the congestive symptoms are not marked or the tension not too high. It is well worth while knowing if you can or cannot aggravate the symptoms by its use. To me it is just as important as knowing how rapidly the symptoms can be controlled by eserine. An iris that rapidly responds to eserine and rapidly reduces the intra-ocular pressure would appear to be a favorable case for non-surgical management. Such cases, however, do not seem to stand eserine so well over a long period, therefore, one should depend more upon the pilocarpine salts. I prefer these drug tests to the so-called light sense dark-room and intra-venous injection tests of various drugs.

I have on many occasions seen elevated intra-ocular pressure reduced after the use of homatropine.

*Medicinal Therapy:* From the standpoint of drugs for the purpose of controlling the intra-ocular pressure, eserine and pilocarpine are still preeminent. Our friend glaucosan has passed on to the land of limbo as have so many panaceas of the past. In an emergency one may resort to hypertonic solutions of magnesium sulphate or sodium chloride by proctoclysis or intra-venous injections of glucose solutions. This incidentally is an excellent procedure to follow before operating especially where the tension is high and choroidal hemorrhage feared.

One may add that this form of investigation and management is also indicated when surgery is resorted to, because any surgical procedure used does not remove the cause of the glaucoma, it only attempts to control the symptoms resulting from the elevated intra-ocular pressure.

By this method we may be able to postpone



operation in some cases for many years and in a few throughout life. If at any time the tension is not controllable or the perimetric fields show progressive contraction, surgery must be resorted to as soon as possible. In some cases the tension may remain within reasonable limits, but contraction of the fields may go on. In such cases if we can rule out factors that involve the optic nerve other than that due to the intra-ocular pressure we should operate.

In the use of miotics there is no hard and fast rule to follow as to dosage and length of time to be used other than just sufficient to keep down the tension.

It is safe to say that eserine as a rule is not well tolerated over a long period; pilocarpine acts more favorably. Combinations of these two frequently act favorable where the tension is high and the individual drugs have lost their potency.

*Surgical Management:* This resolves itself into, when shall we operate, what may we expect and what will be the prognosis?

As far as we know today, all the symptoms can be the result of the elevated intra-ocular pressure. The various arguments relative to the factors responsible for the elevated intra-ocular pressure, that is, increased fluid production or decreased fluid escape, etc., is pertinent to the question but not to the object of this paper; therefore, that question need not be reviewed at this time.

*When shall we operate?* Preferably between attacks, and when the intra-ocular pressure cannot be maintained within reasonable normal limits by miotics and systemic attention and when the perimetric field continues to show contraction.

The role of surgery is to do that which will reduce this pathologic intra-ocular pressure and the operation to be used, is that one which will with the least manipulation accomplish this result and maintain it over the longest period.

Many operations have been devised for this purpose, all of which must fall into one of two classes. In one class we have those operations that attempt to reestablish the functions of the so-called natural channels of fluid escape, that is, the spaces of Fontana and the canal of Schlemm, granting for the purpose of this paper and the moment, that they are the all important

channels through which the aqueous must leave the eye ball. In this class must fall all the iridectomy operations, the classical broad iridectomy, deep iridectomy and their many modifications. In this class must also fall the cyclo-diastasis operation of Heine and its modifications.

In the other class we have the decompression operations, in which an attempt is made to divert the direction of flow of the intra-ocular fluids from these chambers into the subconjunctival spaces through a surgical opening. In this class we have the La Grange operation and its many modifications, e. g., the scleral wedge of Herbert, the trephine of Elliott and Fergus, etc. In this class should also be included the iridodectomy operation of Critchett popularized by Borthen and others, the Zorab seton operation, and in all probability the iridenclysis operation of Holth.

What may we hope to accomplish by an operation and how is this hope to be fulfilled is, of course, the all-important question.

If we still adhere to the conventional or classical teaching and most of us do, namely, that the drainage angle is the crux of the entire glaucoma problem, then only one method of procedure is open to us,—that is surgery directed to overcome the pathology existing here.

Many of us still believe in the fanciful but alluring pump action theory of Thompson and insist that the aqueous must enter the canal of Schlemm before the pathologic pressure can be reduced. This writer does not believe that the so-called scleral spur can move so as to function according to the Thompson theory. But he does believe that in the normal eye the meshwork of the drainage angle does function as a dialyzing membrane and thus permits the aqueous to find its way into the canal of Schlemm. Unfortunately, the meshwork of an eye suffering from glaucoma is rarely normal when it reaches the physician who makes the correct diagnosis. The exception may be in the simplex type (non-conjunctive). As a rule when such cases reach the physician peripheral iris synechiae are already formed and the meshwork leading to the canal is compressed and therefore impermeable, thus blocking off the entrance to the canal. These peripheral iris synechiae which are usually present in the congestive or inflammatory type may be located in any one part or throughout the

entire circumference of the limbus. To be able to tell just where these synechiae are located would be a decided advantage and might be ascertained if everyone possessed a Troncoso gonioscope, knew how to use it and the patient a living phantom! Unfortunately, that is rarely the situation, but we have in the past and still continue to do whatever operation we may use, in the region of 12 o'clock at the limbus, (the cyclodialysis operation excepted). The advantages of operating in this particular region is well known and reasonable. But by what method of reasoning may we conclude that the synechiae blocking the entrance to the canal of Schlemm are located at this particular point, there is no such tangible evidence. To this idea there is no serious objection, but we must not delude ourselves and feel that by an iridectomy at a definite point we are reopening the blocked entrance to the canal of Schlemm. At best it is a haphazard guess that synechiae are present or absent at this particular point; as a matter of fact, they may be located here or in any part or throughout the entire circumference. It is, therefore, unreasonable to feel that the result (which may be good) obtained from such an operation is due to the re-establishment of drainage into the canal of Schlemm. I do not recall seeing a single microscopic slide or microphotograph which convinced me that the aim of the operation had been accomplished, that is reduction of the peripheral synechia. I do not mean to condemn the iridectomy operation, because results from this procedure are probably as good if not better than most other operations that aim to reestablish drainage into the canal of Schlemm.

We can say fairly definitely that the results obtained from any mode of iridectomy operation do not re-establish drainage through the spaces of Fontana and into the canal of Schlemm.

We may further say that if any operation can accomplish this purpose then the cyclodialysis procedure of Heine should be able to do so. Here an instrument (spatula) is passed through the sclera, posterior to the ciliary zone made to hug the sclera until it finds its way into the anterior chamber and then by a sweeping motion is the ciliary body separated from its scleral attachment. In this operation we can say that if the peripheral anterior synechia can be separated in

a definite sector of the circumference it may be accomplished in this manner. But the advocates of this technique only claim that they give the aqueous an opportunity of entering the supra-choroidal spaces and do not stress the factor of opening the normal channels. My personal experience with this operation is not extensive, I tried it in about 12 or 15 cases many years ago and the results in my hands were not conducive to its continued use. In central Europe and Japan they still advocate its use. Its popularity in Europe is probably due to the marked preponderance of the non-congestive type (simplex) of glaucoma over the congestive or inflammatory type that is most frequently seen throughout our central states.

I am inclined to think, that it is for this reason that in Germany and Austria in particular, this operation is popular and owing to that popularity and the results obtained, is the theory set forth that the non-congestive or simplex type and congestive or inflammatory types are not due to the same factors, but entirely different diseases. I have seen too many cases pass through the stages of the non-congestive or simplex type into the congestive or inflammatory type. Some of you may recall a case I presented before the Chicago Ophthalmological society a number of years ago; this was beautifully demonstrated during the presentation. The case was presented because of the typical picture and history of glaucoma simplex in the presence of a coloboma of the iris in the region of 12 o'clock. During the examination and discussion while gathered around her, the woman apparently became impressed that something of a very serious nature existed and the cornea became cloudy and stippled so that her fundus could no longer be seen clearly; this was followed by ciliary injection.

Relative to the iridectomy operations it is my belief that the results obtained are due to the presence of iris fragments in the limbal wound which act as a drain into the subconjunctival spaces. I am aware that the advocates of the deep iridectomy operation absolutely deny this to be a fact; furthermore, I have seen the clinical results in such cases where I could not maintain my position. But I have also on many occasions seen just such results following a decompression operation where one could not detect any



evidence of iris incarceration. Many years ago this writer in trying to account for the brilliant results so frequently reported for the various operations from time to time came to a conclusion and presented a thought before this society that is still worthy of consideration. That is, that whatever technique is used is probably not as important as the fact that when the normal anatomic relations of the iris are disturbed, something happens that seems favorable to the intra-ocular pressure. The iris vessels and probably the crypts of Fuchs being released from a comparative fixed state may with the emptying of the anterior chamber be able to again function as a dialyzing membrane. I am inclined to think that results obtained in the cyclodialysis operation is more due to this factor than the supra-choroidal drainage; as a matter of fact, the supra-choroidal spaces are poorly developed for this purpose. But this changed state of vessel environment is also not of permanent value and we find the enthusiasm of these various surgeons for a particular technique somewhat diminished as years go by. I am convinced that we are at this time unable by any technique so far devised to reestablish these so-called functions of the spaces of Fontana and canal of Schlemm when peripheral synechiae have once been formed. Even in the time of von Graeffe and de Wecker was this thought seriously considered and we find Critchett in 1857 attempting to do a decompression operation (iris inclusion) for the purpose of draining direct from the anterior chamber into the subconjunctival spaces.

It would appear that until we know more about the etiology of glaucoma we will be compelled to resort to surgery to overcome this elevated intra-ocular pressure and it would seem that the decompression operations offer a more positive drainage at this time. *All decompression operations* are fundamentally based on the same principle, in one a section of firm tissue is removed, in the other we have the lips of the wound separated by some form of drainage tissue. The La Grange operation still has many advocates and the modifications can be used with much advantage in many cases. The Herbert wedge operation is not radically different basically from the La Grange procedure, but is not used to any extent in this country. The Elliott and Fergus trephine operations are like-

wise very similar to the preceding operations; in one an elongated section of the limbus is removed and in the other a round section is used. Basically they are the same and as a matter of fact the results are very similar in the hands of equally competent surgeons who have developed a personal technique. The Fergus operation is not well known in this country, but if this writer were to return to the trephine technique he should favor the details suggested by Fergus.

Then we have left the operations in which some form of tissue is interposed between the lips of an incision at the limbus. Many different tissues have been used for this purpose and some have even advocated the introduction of some foreign material, e. g., horse hair, silk suture material, etc., as in the Zorab operation. Of all operations devised in this class the iris incarceration operation is the oldest and probably the most popular today. This was first introduced as far as we know by Critchett in 1857 and revived by Borthen some 25 or 30 years ago and has been consistently used by him since that time. This writer has used this operation for over 12 years with certainly less grief than any other operation so far devised. The simplicity of the technique, the rapid results, the short period of hospitalization and after care must appeal to the surgeon. The startling results obtained in my first series of cases which consisted of totally blind, painful, red eyes that we usually submit for enucleation, impressed this writer most emphatically. In this series, the pain disappeared, the eyes became white and the pressure was markedly reduced and this writer is still of the opinion that the best artificial eye on the market is neither as comfortable or decorative as a natural but blind eye. Here again the criticism comes up as to just how the fluids are drained off. Borthen still lays more stress on the factor of the traction of the iris upward which opens wider the spaces of Fontana below and thus permits freer access to the canal of Schlemm. In the great majority of my cases, definite subconjunctival drainage is apparent. In the non-congestive type (simplex) subconjunctival drainage is not always demonstrable, but this writer firmly believes that if any intra-ocular drainage takes place it is in the form of renewed fluid interchange between the aqueous and the capillaries of the uveal tract. Here

again may the factor previously referred to as a changed vascular status conducive to dialization, and fluid equilibrium come into play. In a few cases this writer has been compelled to reoperate; the results as a rule have been favorable where it has been possible to incarcerate another part of the iris. Where this fails then may one resort to a small modified La Grange or similar operation. Much has been said of the danger of incarcerating iris tissue in a rigid limbal wound. In an experience of over 12 years with several hundred cases by this technique I have as yet to note any findings that can in any way maintain this criticism. The iris changes noted in some cases after a number of years consists of disappearance of the pigment epithelium of the pupillary margin in the region of the operated field and in very bad cases some scattered patches of iris depigmentation may be seen.

The iridotaxis operation is not a cure for glaucoma, no more so than any other surgical procedure; it merely overcomes the symptoms, it does not remove the cause, but it does better control intra-ocular pressure than any other operation this writer has used or seen used. The technique is very simple and the ability to use atropine sulphate freely is a decided advantage. We have slightly modified the original technique of Borthen but have introduced no radical departures, the principle remaining the same.

I have at this time a number of cases which have been under observation for many years that come in now and then and complain bitterly of symptoms which they describe as a sticking, like with pins. Examination discloses no diminution in vision or abnormal pressure, occasionally one will notice a little more edema of the conjunctiva during this period. It is my belief that in these cases during this time these individuals are suffering from an attack of symptoms that precede the elevation of the intra-ocular pressure and that the pin pricking sensation they feel is due to an excessive amount of fluid trying to escape through the limbal wound.

#### SUMMARY

1. No surgical operation for glaucoma so far devised can remove the cause, therefore, it cannot be considered as a cure.

2. In this writer's opinion, no operation can restore to normal function the so-called drainage

angle, after peripheral iris synechiae have existed for some time.

Therefore, operations devised for this purpose must attain results in other ways.

3. The various decompression operations offer a more positive avenue of fluid escape and in addition favors fresh aqueous formation.

4. In this writer's experience the iridotaxis operation accomplishes the desired results with less danger to the eye owing to the simplicity of the technique necessary.

#### DISCUSSION

Dr. Harry Woodruff, Joliet: Dr. Goldenburg raised a number of questions, as he always does, on this subject. One thing that struck me very definitely, that is in connection with the slide showing the adhesion of the iris to the cornea in the region of the corneosclera. The point I want to make is this; your operation should be done before you get these adhesions, because when you arrive at that stage you have arrived at a place where you have a lot of pathology in the eye, and no operation will offer much. Therefore, be careful about recommending pilocarpin or eserine as anything but a temporary remedy. I believe very strongly, no matter what the condition is regarding congestion, or what Dr. Goldenburg has said with reference to deferring operation until the acute symptoms have subsided, I do not believe in doing that; I believe in giving general anesthesia and doing the operation at once. Glaucoma is a symptom, a symptom is a part of a disease, is it not? And it is the essential part of this disease. When you have a congestion of the ciliary body that leads up to tension, it makes no difference if you have, tension must be relieved, because an eye will not tolerate that tension very long without the occurrence of the results he has described. I believe that to a lesser extent the same thing applies in glaucoma simplex. If you do an operation, peripheral deep iridectomy before you have the changes, you will save the eye as you do in inflammatory glaucoma. Many years ago De Wecker said, "where eserine has perhaps saved a few eyes from blindness, it has prevented many more from being saved." So I say that eserine or miotics generally are only for temporary use. The operation should be performed as early as can be done in these two types of glaucoma, acute inflammatory and chronic simplex.

Dr. Richard J. Tivnen, Chicago: While motoring down here with Dr. Harry Woodruff, his son, Dr. George, and Dr. Geiger, I asked them this question: "What eye disease causes us the most anxiety?" The unanimous verdict was "glaucoma simplex." I am sure most of us will agree with this verdict. Dr. Goldenburg has given us an excellent resume of glaucoma. There is indeed little one may add to his thorough presentation. There are always two phases of its therapeutic management which provokes wide diversity of opinion, first the comparative merit of the medical



versus the operative treatment, second the type of operation performed and when. I am in agreement with Dr. Woodruff's view that the time when the case comes under observation, that is the stage of development the disease has reached when we first see the case, is the basic determining factor in our selection of a therapeutic procedure. What to do for the patient who already is a victim of this baneful disease is always an intensely interesting matter. Apart from this there is another phase of the subject which is almost equally interesting and deserves emphasis. Experience has demonstrated that there is a rather large group of folks whose general physical make-up and ocular complex predisposes them to attacks of glaucoma. One might aptly borrow the well-known political phrase and label this group "receptive candidates" for the disease. Is it possible for us to recognize these so-called "candidates" early and if so have we any dependable plan of management which will protect them from attacks? The answer is "yes" to both queries. What is the nature and rationale of the service we have to offer this class of patient? The answer is that it is based on a thoroughgoing routine plan of investigation of the patient's general physical condition, his ocular status and an intensive checking up of all the recognized theories of the causation of the disease. Brief excerpts of the observations of authors of experience, taken from Wood's Encyclopedia of Ophthalmology are of interest in this connection. Maitland Ramsey, for example, states, "the disease is not to be looked upon as a morbid entity but as a symptom complex; and its true nature will all the better be understood if one thinks of its acute manifestations as analogous to an attack of angina pectoris. Its occurrences depend not only upon the size and immediate structure of the eye-ball but also upon the age, race, and general health of the patient." It is commonly associated with nervous affections, cardiac disease and circulatory disturbances of chronic intoxications. Sleeplessness, worry, bronchitis, influenza and neuralgia of the fifth nerve are common exciting causes. Focal infections in the upper respiratory tract—teeth, tonsil, nasal accessory sinuses—as well as general systemic foci of infection are regarded as factors. Age is an outstanding predisposing cause. It rarely occurs before 40; it continually increases up to and during the seventh decade so that between 60 and 70 it is more than twice as common as from 40 to 50. It occurs hereditarily in both the acute and chronic forms and it may be transmitted by either sex or inherited by either sex. Persons of the 'spare' habit and the 'dyspeptic' are more susceptible than the fat, robust and lymphatic. Females are more predisposed than males." Arteriosclerosis is regarded as a predisposing cause. One may quote at considerable length and restate many other additional facts along these lines which, of course, are well known to all of us. The only value in restating them is to emphasize that glaucoma is clearly a protean disease with its etiology not confined exclusively to the eye but having ramifications in the patient's general system and being influenced by his mode of life, his daily balances in the expenditure of

energy and rest and between work and play. Due appreciation of all these factors also supplies us at once with the data with which we may organize our routine plan of investigation of these so-called "Candidates" for glaucoma. It seems clear, therefore, that if we are to offer any really constructive plan of prevention or to make any real substantial progress in the early recognition of these so-called "candidates for glaucoma" it is necessary that all your patients of middle life and beyond be put through an invariable routine program of investigation not alone of their ocular status but their general system as well. Such a routine would comprise first, a general physical examination with especial emphasis on the cardio-vascular, gastro-intestinal, nervous systems, the endocrines and the various sources of focal infection, teeth, tonsil, nasal accessory sinus; second a thorough eye examination including refraction, fundus, visual fields and tonometric tests; both of these examinations to be repeated at definite intervals. Such a routine plan is not, as we know, easy to put in operation in all cases. A large per cent. of patients in middle and advanced life consult us with only one thought in mind—that all they require is glasses for reading. Such patients are strongly adverse to undergoing such a detailed, and to them wholly unnecessary, time consuming ordeal. It is however in precisely this class of patients our greatest service may lie and no small amount of patience, detailed explanation and insistence is necessary to convince them of the wisdom of our plan. It can be done, however, and it should be insisted upon routinely. I shall have to disagree with my learned friend, Dr. Goldenburg, on the routine use of homatropin for diagnostic purposes. If possible, I refrain from using a mydriatic in these cases but if this be impossible, I prefer euphthalmin. It is also my custom to instill eserin, following a mydriatic, in every patient whatever the age.

Dr. Michael Goldenburg, Chicago (closing): Glaucoma has been a hobby of mine for many years and I have derived much pleasure and information from its study. I am aware that my views on the subject are not orthodox, but the orthodox viewpoint has made little or no progress in solving this problem. In reply to Dr. Woodruff's remarks relative to early operation, there is no question but what that would be more favorable. Unfortunately, the cases that come to us at the Infirmary are usually very late or blind. In the past few weeks two cases presented themselves with an intra-ocular pressure of 89 and 91 and vision limited to light perception.

Dr. Tivnen's suggestion for early diagnosis is, of course, the key to the situation. In private practice routine examination is possible, but in a large out clinic department it is not always practical. My personal routine consists of taking the tension by finger palpation and then followed by homatropine dilatation and complete fundus examination. If there is any indication of possible pathologic pressure we resort to the tonometer and later field charting.

I am not at all fearful of precipitating an attack of glaucoma by the use of a mydriatic. I feel that a case

that can be so precipitated will rapidly respond to eserine and the sooner the physician and the patient is aware of the condition the better will be the prognosis. I had such an experience recently in the wife of a physician, but on further study we found that her fields were contracted to the 20 degree circle and that she had a non-congestive or simplex type of glaucoma, probably existing for some time past.

## THE DIAGNOSIS AND TREATMENT OF LARYNGEAL TUBERCULOSIS\*

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If we educate ourselves to the importance of preventive medicine in the future, as we have done during the past twenty-five years, we can continue to reduce the death rate from preventable diseases, such as tuberculosis, even to a greater degree during the next quarter of a century. The prevention of laryngeal tuberculosis depends so largely upon an early diagnosis of pulmonary tuberculosis. Early discovery of the pulmonary disease, and proper rest, usually means early recovery and prevention of laryngeal complications. Greene<sup>1</sup> has recently urged early diagnosis. Therefore, the physician who sees a patient for the first time with cough, loss of weight, sputum, etc., does not do his fullest duty until he excludes pulmonary tuberculosis as a likely cause of the symptoms. Having educated our own profession to the importance of this early diagnosis we must next educate the laity.

One of the earliest objective symptoms of laryngeal tuberculosis is infiltration of the interarytenoid sulcus. This often resembles pachyderma of the larynx and does not always attract very much attention, especially if there is a history of chronic hoarseness for some weeks or months. However, it should attract attention and laryngeal tuberculosis should be excluded as well as pulmonary tuberculosis. Before there is infiltration in the larynx one may find marked hyperemia or congestion of the larynx and nothing else in patients who are coughing a great deal. This pre-tuberculosis appearance of chronic laryngitis in patients with a cough should always arouse a suspicion of pulmonary tuberculosis.

Other patients who have had pulmonary tuber-

culosis for some time and who have a secondary anemia, which is so common with the pulmonary form of the disease, may show a mottling of the larynx. There are small pink areas alternating with pale areas. These not only show in the larynx, but they also show over the mucous membranes of the pharynx and soft palate.

My chief, at the Medical Department of the University of Colorado, Dr. Robert Levy, has often emphasized the importance of the anemia and hyperemia as pre-tuberculous manifestations in the mucous membranes of the upper respiratory tract, particularly in the pharynx and larynx.

A small papilloma may appear in the larynx which is really a tuberculoma when caused by tubercle bacilli. We know the preference of tuberculous lesions for the posterior half of the larynx in contrast with the frequency with which carcinoma involves the anterior half. A small papilloma in the larynx, especially in an adult with a cough, should not be accepted as a papilloma until the patient's condition has been very thoroughly studied from every angle.

Ulcerations in the larynx represent a later stage of the disease. They may be acute or active; chronic or sluggish; and, superficial or deep. They are far more likely to be superficial at first and rather sluggish. They often have mouse-nibbled edges and are not always very easily recognized. If the patient complains of pain it is often better to spray the larynx with a 3 per cent. aqueous solution of cocain, wait ten or fifteen minutes for this to take effect and then spray the larynx with some mild alkaline solution to wash the mucus from the ulcers as much as possible. Following this a 2 per cent. aqueous solution of fluorescein should be sprayed into the larynx. The fluorescein will stain even superficial tuberculous ulcers a light green color and they can be more easily recognized.

Deep ulcers usually result from a deep tubercle which has ruptured spontaneously on the surface. These tuberculous ulcers also often have mouse-nibbled edges. They do not have the deep punched-out appearance of syphilitic ulcers.

Multiple tubercles in the larynx often produce an edema which Sir St. Clair Thomson<sup>2</sup> prefers to designate as pseudoedema. This is particularly likely to show in the arytenoids and in the aryepiglottic folds. This edema may give rise to

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the so-called club-shaped deformity of an arytenoid. This club-shape is not pathognomonic of tuberculosis, as formerly accepted, but may be caused by syphilis.

Nature tries to produce in the larynx the same condition she produces in the lungs, unless the disease is progressing too rapidly, and that is fibrosis. Fibroid changes in the larynx often go hand in hand with edema. This is particularly true in the arytenoids and in the aryepiglottic folds. This fibrosis tends to destroy tubercles and arrest the disease. Tuberculosis may involve the perichondrium of the larynx producing a perichondritis and later chondritis. These are both late manifestations of laryngeal tuberculosis and are very serious ones. They are nearly always followed by necrosis of part of the cartilage, as well as the mucosa, submucosa and musculature.

Ziegelman<sup>3</sup> has recently reported a tuberculoma of the laryngeal ventricle resembling prolapse of the mucous membrane. While this is an unusual tuberculous lesion it serves to show how varied the gross lesions seen in the larynx can be.

The clinical diagnosis of laryngeal tuberculosis should be made only temporarily and should not be considered complete without a very thorough and complete general physical examination and particularly a very complete examination of the chest by a chest expert. This examination should be supplemented by a Roentgen-ray examination of the chest. Films taken stereoscopically are better than flat films. We know that pulmonary tuberculosis is prone to manifest itself first in the apices and usually on the left earlier than on the right. The general physical examination of the chest and Roentgen-ray examination should be supplemented by a urinalysis, by a blood examination, including a blood Wassermann, examination of sputum, etc. One or two negative sputum examinations count for very little. An animal inoculation may be necessary to find tubercle bacilli.

Let me repeat that the importance of an early pulmonary diagnosis cannot be emphasized too much. While the death rate from pulmonary tuberculosis has been reduced in a very gratifying manner during the past twenty-five years, we cannot afford to be satisfied with our present results. Laryngeal tuberculosis is a disease which comes relatively late during the course of

pulmonary tuberculosis. Prevention of laryngeal tuberculosis is often the best means of saving the patient's life. We know that many times patients have rather advanced laryngeal lesions before they complain of subjective symptoms such as dysphagia, odynphagia, hoarseness, aphonia, etc. We should not wait for subjective symptoms to examine the larynx, in patients suffering with pulmonary tuberculosis. The larynx should be routinely examined at least once each month in each and every patient with pulmonary tuberculosis.

The differential diagnosis is very important. Syphilis must be excluded. It is not uncommon to find syphilis and tuberculosis in the same larynx. Laryngeal tuberculosis is most common from 20 to 45 years of age. Syphilis is also most prevalent, in the acquired form, at the same ages. Many of the lesions so typical of laryngeal tuberculosis can be duplicated by syphilis.

In children laryngeal tuberculosis is quite rare. Even in children with pulmonary tuberculosis the infection more frequently spreads to the lymph glands.

Lupus, which is so much more common in Europe than in this country, may produce lesions which can easily be confused with tuberculosis. Lupus is more sluggish. The symptoms are not at any time likely to be more than mildly chronic. The lupus lesions, when present on the face, have aided greatly in establishing the diagnosis.

Actinomyces may produce an infiltration in the larynx which simulates an infiltration from tuberculosis. Biopsy will often show the ray-fungus in the tissue removed and not the tubercle bacillus. The total absence of tuberculosis in the lungs is a very important differential point, in actinomyces, as it is in syphilis. Biopsy for the differentiation of syphilis and tuberculosis is a justifiable procedure in doubtful cases.

Carcinoma of the larynx is more frequently found in patients past 50 and more frequently in men than in women. The lesion is more likely to occur in the anterior half of the larynx instead of in the posterior half where tuberculous lesions are so frequently found. Pain is often referred to the ear on the corresponding side with an early carcinomatous nodule in the larynx. Hoarseness seems to manifest itself earlier in carcinoma than in tuberculosis. The absence of

pulmonary tuberculosis as well as the age of the patient are helpful deciding points. Carcinoma is more frequent past fifty. The late John E. MacKenty,<sup>4</sup> with his superlative skill, was able to diagnose laryngeal carcinoma without biopsy. However, in the case of most laryngeal lesions biopsy is more than justifiable in order to be sure the lesion is or is not carcinoma. Personally I do not believe that biopsy should be relegated to the past even with all of our modern scientific methods of diagnosis both clinical and laboratory.

Chronic catarrhal laryngitis should offer very little difficulty of diagnosis while a ptychoderma of the interarytenoid sulcus may and frequently does look like the infiltration of a tuberculous lesion. A chronic catarrhal laryngitis does not produce gross lesions in the larynx while it may be present in a patient with pulmonary tuberculosis. It is in itself not a tuberculous lesion and should give relatively little difficulty of differentiation.

Treatment of laryngeal tuberculosis must go hand in hand with that of the pulmonary disease. The laryngologist must work with the chest expert if anything is to be accomplished. Bed rest is extremely important not only on account of the pulmonary disease but on account of the laryngeal.

Climatic treatment is very important for those who can afford to go away from home. In recent years, I am very glad to say, many sanatoria have been provided, all over North America, for the care of tuberculous patients. Patients are being well cared for. This is one of the biggest factors in the reduction of the mortality from tuberculosis and in the prevention of the spread of the disease. In fact, so much is being done for tuberculous patients in every community that on July 1, 1932, Phipps Sanitarium in Denver, for tuberculous patients, which has been in continuous use since 1904, will probably close its doors. For the past several years the institution has been running at one-third capacity.

Absolute silence puts the larynx at rest more effectively than any other method of treatment. It is rather drastic and is resented by some patients. Sir St. Clair Thomson<sup>2</sup> of London attributes the cure of his own larynx to the fact that he did not even whisper for one year and that during the second year he whispered, but

did not talk out loud. The fact that so celebrated an authority upon laryngeal tuberculosis was willing to submit to this treatment so promptly is the best recommendation I know of for its use. If patients are too depressed by remaining absolutely silent it is sometimes necessary to allow them to whisper. Both of these methods of treatment can be carried out much better in a sanitarium than they can in a general hospital and much better than in the patient's home.

During recent years sunlight treatment of the larynx has assumed a great deal of importance. This was first used by J. Sörgo,<sup>5, 6</sup> in Switzerland in 1904 and 1905. Glass absorbs the actinic, chemical or ultra-violet rays and is not suitable for reflecting the sun's rays into the larynx. The Verba Solar Laryngoscope has mirrors made of an alloy of aluminum and magnesium. More than 90 per cent. of the actinic rays are reflected into the larynx by these mirrors, so that the patient gets the benefit of the actinic rays. This method of treatment is a form of occupational therapy. It enables the patient to see his own larynx and to study the progress of the disease. Patients should begin by exposing the larynx for a half minute daily. The time may be lengthened a half minute each week until the patient can tolerate, without sun-burning the larynx, ten minutes daily. The mirrors are fastened to the back of a chair, upon which the patient sits in reverse fashion, or to the head of the patient's bed. Patients often become over-enthusiastic regarding this method of treatment and unless the treatment is supervised by a laryngologist they are likely to overdo it, especially at first, with the result that they soon sunburn the larynx and do harm instead of good.

Lactic acid, formalin and trichloroacetic acid have very little use in the field of laryngeal tuberculosis. They are all extremely irritating and are difficult to apply. Small amounts of these on a very delicate cotton-wound applicator may be useful for the treatment of ulcers, but there is grave danger that they will be applied to the normal areas in the larynx and produce needless irritation which it is so desirable to avoid.

Probably no single method of treatment for laryngeal tuberculosis has ever assumed so much importance and yielded such uniformly good results as cauterization. Sir St. Clair Thomson<sup>2</sup>



of London advocates the use of the cautery at white heat instead of a red cautery point, because, at white heat the platinum point seals the cauterized area instead of pulling the eschar out with it when the cautery is withdrawn, thus leaving a bleeding area. The cautery may be used by the direct or indirect method. L. W. Dean<sup>7</sup> and H. Arrowsmith<sup>8</sup> have advocated suspension. Sir St. Clair Thomson<sup>2</sup> and Joseph B. Greene<sup>9</sup> prefer the indirect method. I have used both methods, but find the indirect method usually the better. As many as four to six lesions may be cauterized at a single sitting under cocain anesthesia. It is not necessary to destroy the entire tubercle. A sharp cautery plunged into a tubercle, at white heat, will produce enough fibroid change to ultimately destroy the tubercle or an ulcer depending upon which one it is used for. To be of any great value it should be used early before there are too many multiple lesions in the larynx. It should not be used when the patient has a high fever, night sweats, loss of weight and exhaustion from the pulmonary disease. It should only be used when the chest expert reports that the patient's condition will tolerate the use of the cautery. Hemorrhage and infection rarely follow the use of the cautery and very little after-care is required.

Excellent local anesthesia can best be obtained by applying a 10 per cent. aqueous solution of cocain to the larynx on a cotton-wound laryngeal applicator, or with a Bruning's laryngeal syringe, once each one or two minutes for fifteen minutes. The application should be preceded, by one-half hour, by a hypodermic injection of Morphine sulphate  $\frac{1}{4}$  grain. If the patient is very apprehensive Sodium Amytal gr. iii, one hour before and the same dose one-half hour before the application of the cocain will usually allay all fear. The best anesthesia can usually be obtained by waiting fifteen minutes after applying the cocain before cauterizing. Sodium Amytal also lessens the danger of poisoning from cocain.

Amputation of the epiglottis has offered an excellent means of arresting the disease when the gross pathology is limited to the epiglottis. If it has extended into the base of the tongue and the pharynx, amputation only aggravates the disease and hastens the death of the patient. This may be done only under local anesthesia, as

patients with pulmonary and laryngeal tuberculosis are very poor risks for any and all types of general anesthesia.

L. B. Lockard<sup>10</sup> makes the following statements regarding the seriousness of epiglottidean tuberculosis:

"By far the most fatal, as well as the most painful, localization of tuberculosis in the larynx is the epiglottidean; a type always resistant to treatment, rapid in development and extension, and deplorable in the subjective symptoms evoked. The picture presented by the unfortunate subject of such a process is well known to all, and no other condition, with the possible exception of a malignant growth, induces a feeling of such utter helplessness as to either cure or effective palliation. That it is possible, however, through radical extirpation of the involved organ, to effectually relieve the pain in practically all of these cases and to permanently cure the larynx in a small proportion, has, I believe, been conclusively demonstrated."

Lockard<sup>11</sup> furthermore says, in drawing conclusions from statistics:

"These statistics, limited though they be, warrant the unequivocal assertion that amputation should be performed in every case of involvement regardless of the extent of the disease, local or constitutional, when odynphagia or dysphagia exists and can be ascribed, even though only in part, to the epiglottis; that it is likewise indicated, and should be performed at the earliest possible moment, in every case where there is anything beyond a sharply circumscribed focus, whether or not odynphagia exists, provided there is even a remote possibility of arrest of the complicating lesions. If the accompanying processes are advanced to a stage where arrest is improbable, amputation should not be performed unless the lesion gives rise to otherwise uncontrollable pain.

"Some few cases, even of widespread involvement, will recover spontaneously or by reason of less radical treatment, but for every one so saved ten or twelve will succumb. Epiglottidectomy will save that one as well as an occasional case from among those who otherwise would die and, in addition, will free practically all from the most harassing feature of the disease, the well-nigh intolerable odynphagia."

*Indications.*—Lockard<sup>10</sup> gives the following excellent reasons for amputation of the epiglottis:

"1. The operation is imperatively demanded in every case of involvement accompanied by severe dysphagia, regardless of the state of the lungs.

2. Immediate removal is indicated even when dysphagia has not supervened, provided the lesion is extensive and there is still hope of arresting the pulmonic disease. The existence of such a focus is a constant menace, because it may at any moment give rise to

severe pain and in a brief period cause irreparable injury.

3. Any lesion that resists treatment should be excised.

4. If the condition of the epiglottis is such as to hinder correct treatment of underlying lesions, it may be removed to render these parts more accessible."

*Contraindications.*—Under certain conditions amputation should not be resorted to, as follows:

1. Patients who are approaching a fatal termination, even though not moribund, should be made as comfortable as possible with narcotics and should not have an operation. At first thought this seems to be rather an unnecessary precaution, but such is not the case. During the late stages of pulmonary and laryngeal tuberculosis patients frequently develop severe and very painful epiglottidean tuberculosis. Every effort must be put forth to give them relief, but the epiglottis should not be amputated if the patient has only a few weeks to live. If by amputation he can be made comfortable for several weeks or months, then the operation is justifiable.

2. If there is present even an incipient tuberculosis of the pharynx, fauces, or base of the tongue, epiglottidectomy seems only to hasten the fatal termination.

3. Hemoptysis, even when slight or mild, is likely to be aggravated by any surgical procedure.

*Preparation and Anesthesia.*—This should be carried out just as outlined for cauterization, except that more of the cocain should be applied about the epiglottis and the base of the tongue.

*Technic.*—The epiglottis may be removed by either the direct or indirect method. Dean<sup>7</sup> prefers to operate by suspension. Lake's forceps are well adapted to the indirect method. The cold wire snare and the galvanocautery snare are preferred by some laryngologists. Most of the laryngologists who have used the cautery snare report rather a severe reaction following its use. Personally I prefer to amputate the epiglottis with forceps. Lake, Barwell, Spiess, and Moritz-Schmidt have each devised forceps for use by the indirect method. Occasionally it is necessary to remove the epiglottis in sections, but as a rule the entire epiglottis can be cut off, well down against the base of the tongue, with the first bite of the forceps.

*Hemorrhage.*—Occasionally moderately severe

hemorrhage follows the removal of the epiglottis, but this will usually stop in a very few minutes. If it does not stop, a tonsil hemostat can be used to catch the vessel, or the galvanocautery may be applied. Delayed primary or secondary hemorrhages are rare.

*Infection.*—Delayed healing of the stump of the epiglottis from infection of any kind is extremely rare. The wound usually heals promptly in ten to fourteen days.

*After-Care.*—Formalin, lactic acid, silver nitrate, protargol, argyrol, iodine, mercurchrome, the galvanocautery, etc., are all suitable for application to the stump of the epiglottis, either immediately after the operation or during the subsequent healing, if the operator prefers. Sprays and gargles may also be used. Healing will take place just as rapidly if these drugs are omitted, except in patients suffering with post-operative infection.

Tracheotomy for advanced laryngeal tuberculosis is a humane and a justifiable procedure. This puts the larynx at rest. It should not be used in early cases.

Gastrostomy is a very humane procedure. It enables the patient to take nourishment when the larynx is so extensively involved that swallowing is impossible. Gastrostomy is not recommended except in advanced laryngeal tuberculosis with odynphagia and emaciation from failure to take proper nourishment. Rectal feeding is usually not very satisfactory. Tube feeding is also unsatisfactory. Gastrostomy seems to be the best method of making the patient's last few months of life bearable and reasonably comfortable. Dr. Chevalier Jackson is a strong advocate of gastrostomy in patients who are suffering from severe pain whether due to tuberculosis or cancer of the larynx.

The injection of alcohol for the relief of severe, constant pain in the larynx has, in the hands of many laryngologists, such as Hoffman,<sup>12</sup> Sturmman,<sup>13</sup> Grant,<sup>14</sup> Fetterolf,<sup>15</sup> and Vanderhoff<sup>16</sup> yielded very satisfactory relief for the patient. The injection is carried out as follows: The skin of the neck should be washed with alcohol over an area covering the larynx and adjoining cervical region. Iodine may be painted on the skin at the site selected for the injection in place of the alcohol, if the laryngologist prefers. Three c.c. of a 50 per cent.



aqueous solution of ethyl-alcohol should be drawn into a sterile syringe, as two or three c.c. should be injected on each side. The patient should be placed on a bed or table with the head extended, so as to put the cervical muscles on the stretch. The superior laryngeal nerve can usually be located at about 3 cm. from the thyroid notch, on each side, as it passes over the upper border of the thyroid cartilage to enter the larynx. Pressure at this point, with the finger nail, usually elicits pain. The patient should be told that he will suffer a little pain, but that it will not be severe and will not last long.

The needle should be slowly plunged through the skin at a right angle to the surface for a depth of  $1\frac{1}{2}$  cm. and the needle point moved around until the patient complains of sharp pain in the ear, jaw, neck, or arm on that side, though an occasional patient will not complain of any pain. The solution should be injected slowly while the needle point is being moved about. After withdrawing the needle the puncture should be sealed with flexible collodion. The injection may be repeated on the other side at once or at a subsequent time, according to the patient's condition and the physician's surgical judgment.

Fetterolf<sup>15</sup> concludes that "study of the reported cases would indicate that this method has a distinct place in the treatment of inoperable cases of advanced tuberculous involvement of the larynx, and that in it we have a procedure which requires no special apparatus or training, which is not hazardous or dangerous, which is not seriously painful, which can be repeated as often as may be required, which is usually successful at either the first or second attempt, and which can produce few untoward effects, and those but temporary."

Palliative measures may be required at any time, but are particularly useful in cases which offer a hopeless prognosis. One per cent. menthol in glymol or albolene dropped into the larynx from a laryngeal syringe helps to allay pain.

Chaulmoogra oil has been advocated and used rather extensively in recent years. Dr. R. M. Lukens<sup>17</sup> and my former associate, Dr. C. L. LaRue,<sup>18</sup> have both used chaulmoogra oil with considerable benefit to patients.

Two or three per cent. aqueous solutions of cocain may be necessary for spraying the larynx, especially just before meals, in order that the patient may be able to swallow. Hypodermics of morphin are also necessary in advanced cases. Euphagin tablets offer a means of relieving pain. Euphagin is amidobenzoicethylesther. I have used these following tonsillectomy.

Artificial pneumothorax plays a very important part in the treatment of laryngeal tuberculosis just as it does for pulmonary. Putting one lung, and the worse lung, at rest lessens the sputum, cough and consequent irritation of the larynx. The patients are often definitely better in many respects. Dworetzky<sup>19</sup> believes this method of treating the pulmonary disease often prevents the laryngeal complication.

In conclusion let me emphasize the importance of rest in bed for the pulmonary tuberculosis and rest of the voice by silence, or at least by whispering. Sunlight for the larynx as well as the skin of the entire body is a great help. The cautery should be reserved for the more extensive lesions, and especially those which have resisted other methods of treatment.

Physicians' Building.

## BIBLIOGRAPHY

1. Greene, Joseph B.: Some aspects of Laryngeal Tuberculosis. *Trans. Amer. Laryn., Rhin. & Otol. Soc., Inc.*, 1930, p. 484.
2. Thomson, Sir St. Clair.: *Tuberculosis of the Larynx; Ten Years' Experience in a Sanatorium*. Published by His Majesty's Stationery Office, London, 1924.
3. Ziegelman, Edward F.: Tuberculoma of the Laryngeal Ventricle Resembling Prolapse of the Mucous Membrane: Report of a Case. *Arch. Otolaryn.*, Vol. 15, No. 3, p. 382.
4. MacKenty, John E.: Operation of Total Laryngectomy for the Cure of Intrinsic Cancer of the Larynx. *Ann. Otol., Rhin. & Laryngol.*, 31:110 (Dec.), 1922.
5. Sörgo, J.: On the Treatment of Laryngeal Tuberculosis with Reflected Sunlight. *Wien. klin. Woch.*, 1904, Vol. xvii, pp. 12-14.
6. Sörgo, J.: On the Treatment of Laryngeal Tuberculosis with Sunlight After a Proposal to Treat the Same with Artificial Light. *Wien. klin. Woch.*, 1905, Vol. xviii, pp. 87-89.
7. Dean, L. W.: Treatment of Tuberculous Laryngitis by Suspension Laryngoscopy. *Ann. Otol., Rhinol. and Laryngol.*, Dec., 1921, Vol. xxx, pp. 898-903.
8. Arrowsmith, H.: Present Day Aspects of Laryngeal Tuberculosis. *N. Y. M. J.*, Aug. 11, 1917, Vol. cvi, pp. 245-248.
9. Greene, Joseph B.: The Electro-cautery in the Treatment of Laryngeal Tuberculosis. *Ann. Otol., Rhinol. and Laryngol.*, March, 1924, Vol. xxxiii, p. 193.
10. Lockard, L. B.: Amputation of the Epiglottis in Laryngeal Tuberculosis. *Ann. Otol., Rhinol. & Laryngol.*, 1909, Vol. xviii, pp. 839-851.
11. Lockard, L. B.: Epiglottidectomy—The Rational Treatment of Epiglottiden Tuberculosis. *Tr. Am. Laryngol. Assn.*, 1911, p. 29.
12. Hoffman, R.: Alcohol Injections Into the Superior

Laryngeal Nerve. (Permanent Analgesia in Tuberculous Larynx.) *Verhandl. d. Ver. Dtsch. Laryngolog.*, Wurz., 1909, Vol. lviii, p. 71.

13. Sturmman: Alcohol Injections in the Nervus Laryng. Sup. in Tuberculous Dysphagia. *Berl. klin. Woch.*, 1909, Vol. xlix, p. 613.

14. Grant, J. D.: Extensive Tuberculosis of the Larynx in a Middle Aged Man with Rapid Evolution Showing Almost Complete Recovery. *Galvanocaustic Treatment. Proc. Roy. Soc. Med.*, Lond., 3, Laryngol. Sect., 87-89, 1909-1910.

15. Fetterolf, George E.: The Relief of Pain in Advanced Tuberculosis of the Larynx by Means of Injections of Alcohol Into the Internal Laryngeal Nerve. *Ann. Otol., Rhinol. & Laryngol.*, 1912, Vol. xxi, pp. 128-144.

16. Vanderhoof, D. A.: Technic and Results of Injections of Alcohol for Pain in Tuberculous Laryngitis. *Ill. M. J.*, 1914, Vol. xxv, pp. 139-141.

17. Luken, R. M.: Chaulmoogra Oil in Treatment of Tuberculous Laryngitis. *J. A. M. A.*, Jan. 28, 1922, Vol. lxxviii, pp. 274-275.

18. LaRue, C. L.: Treatment of Tuberculosis Laryngitis Considering Especially the Use of Chaulmoogra Oil. *Tr. Am. Laryngol., Rhinol. and Otol. Soc.*, 1924, p. 303.

19. Dworetzky, J. P.: Lung Immobilization in the Treatment of Pulmonary Tuberculosis and Its Influence on the Larynx. A Further Report. *Tr. Am. Laryngol., Rhinol. and Otol. Soc., Inc.*, 1930, p. 12.

## DISCUSSION

Dr. O. B. Nugent, Chicago: I am very much interested in this presentation, and while Dr. Spencer did not speak of treatment, I would like to ask a few questions concerning treatment of these conditions. Dr. Wesley, I believe, in 1923 invented a light by which he was able to treat tuberculosis of the larynx; it was a carbon arc light. About the same time Dr. Moore presented some forty-nine cases that had been cured. Dr. Muller in Vienna has recently reported treating a large series of cases, in which he got a great deal of benefit with the carbon arc light. Perhaps the ultraviolet was the ray that did the work. I would like to ask Dr. Spencer to give us a little information on that.

Dr. Frank R. Spencer, Boulder, Colorado (closing): The Finsen Light has been used extensively for the treatment of laryngeal tuberculosis, but it is not as satisfactory as ultraviolet light alone. Direct sun light is the most useful form of ultraviolet light available. This can best be applied by means of the Verba Laryngoscope. This has mirrors made of an alloy of aluminum and magnesium, so that a very small percentage of the ultraviolet, actinic or chemical rays are absorbed. Glass mirrors absorb so much of the ultraviolet rays that only a few rays reach the larynx. On cloudy days some type of sun lamp may be used with the laryngeal attachment.

In using a Verba Laryngoscope the patient should sit on a chair in reverse fashion with the laryngoscope attached to the back of the chair. It may also be attached to the head of the patient's bed if the patient is unable to get out of bed. With the Verba Laryngoscope patients are able to see their own larynges and note the progress. This gives them renewed interest in the treatment and serves as one form of occupational therapy.

Dr. J. Sargo of Switzerland was the first to utilize the sun's rays for the treatment of laryngeal tuber-

culosis. His first article appeared in 1905. Since then the method has been perfected and used in many different ways in most of the countries of the civilized world.

Ultraviolet rays have been more satisfactory than any type of high frequency current, although different types of high frequency current, such as the coagulating current, may be used. Cauterization has probably been the most useful single method of treating advanced tuberculosis lesions of the larynx we have.

Doctor Novak has mentioned the fact that suspension laryngoscopy is quite an ordeal for the patient and it is. The reaction following suspension laryngoscopy hardly justifies the routine use of suspension, except in a few selected cases. Sir St. Clair Thomson of London and Dr. Joseph B. Greene, of Ashville, N. C., favor the indirect method. While I have used both methods I believe the indirect is the better one.

## ELECTRIC SHOCK\*

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### CHICAGO

Mr. Chairman, Ladies and Gentlemen:

I feel honored and indeed grateful for this opportunity afforded me to bring before the Surgical section of the Illinois Medical Society a subject which to my mind merits the attention of the entire medical profession, namely, electric shock from industrial currents.

For the past twenty years I have had the good fortune to be affiliated with the electrical industry in Chicago, both power and transportation. In that short time I have witnessed many new uses of electrical energy and with the growth of the industry I have had the opportunity by experience on actual electric accidents to study the problem from a practical rather than a theoretical viewpoint.

We are living in what is known as the "electrical age" by reason of the fact that electricity is the most recent of Nature's energy that has been tamed, as it were, by mankind to do his work.

This so-called subjection of electrical energy to man's bidding has not been accomplished without a large toll taken in lives of men, and has been the direct cause of bringing suffering and disabling injury to countless numbers of people who have been so unfortunate as to come in contact with its current. This electricity is a force which is silent, invisible, powerful and safe

\*Read at annual meeting of Illinois State Medical Society, Surgical Section, at Springfield, May 17, 1932.



to handle if its hazards are respected. It is impossible to so harness it that it can be made harmless under all conditions at all times. Its real nature is still much of a mystery and is little understood by those outside the industry.

Electricity and its uses are but in its infancy today and there is no man daring enough to prophesy what the future holds for this energy. The passing of the near future will witness tremendous strides and expansion of this industry. Long transmission lines carrying voltages in the thousands and tens of thousands, criss cross our continent, carrying electric energy into heretofore inaccessible places for the work and convenience of new consumers. This increased use of electric current will carry with it an increasing toll of injury and death to those who are ignorant of its danger or who will take a chance.

Those who have been engaged in the electrical industry and public utility companies for the past decade have fully realized its danger and have surrounded the workers in and about the current with all possible safeguards. Despite their efforts toward safety by instruction, practice and rules, electrical workers meet disaster far more frequently than can be explained. Safety lies in the proper installation and subsequent maintenance of all electrical equipment. Disregard of the safety rules devised for its use will certainly cause trouble for those who disregard its hazards.

The medical profession is frequently called upon to treat injuries resulting from electrical contact and the better to understand the basic principles of electricity, the better to treat the resulting injuries, they should be thoroughly acquainted with some of these factors. For this paper two kinds of electricity are described; direct or continuous current which flows in one direction, and alternating current or interrupted current, in which the flow of current flows first in one direction and reverses itself and then flows in another direction. The number of reversals or alternate changes in a second of time is known as the frequency of the current. Electricity that is retained within a charged body is called static while that which moves along a conductor is known as dynamic or electricity in motion. The most important factor in electricity as pertains to its effect upon man is the voltage or strength of current. There is no set minimum

or maximum of voltage that will determine the danger to life. While a certain voltage will be fatal to one person under like circumstances to another it may be harmless. The rate of flow or amperage is of importance but there is no definite proof as to how much or how little an amount the human body can tolerate. It has been generally assumed under normal conditions that 0.1 ampere can be tolerated without harm to the human body. The resistance is the property of all substance which has a tendency to obstruct or retard the flow of an electrical current through that substance. It varies with different substances and under different conditions. The greater the resistance of a substance the less current passes and the less harm it can produce in shock. The skin of the hands offer great resistance to the passage of electric current providing they are dry and less resistance if they are wet. The exposed skin surfaces offer greater resistance than the covered surfaces of the body and this is due to perspiration under the clothing. An acid or alkaline perspiration has a tendency to lower skin resistance, while an oily skin has a greater resistance. It has been said that a woman's skin is less resistant to the passage of the electric current than that of man and may be due to a finer texture and less exposure than man's skin. The greater the resistance of the skin the less amperage results but the greater amount of heat is developed with a greater destruction of tissue. The voltage of a given generator remains almost constant while the amperage and resistance vary many times during the day. The further the electricity is sent from the power house the more the voltage is reduced and for that reason it is necessary that at definite locations additional electrical generating equipment is essential to boost the line current or a greater current is generated at the power house and is then reduced to the voltage required by the industry for operation of its electrical machinery.

There has been a mistaken idea in the mind of the average person that low tension or low voltage currents are harmless and can be treated with impunity. Some authorities have gone on record that conditions being equal, any current, direct or alternating, up to 300 volts is harmless as far as being fatal is concerned, and that currents from 300 to 6,000 are the ones to fear.

Strange as it may seem, low voltage current of a low frequency has produced death. There are on record cases of fatal shock as low as 65 volts, and again there are cases where the victim received 50,000 and higher, but was not killed. Again we must treat all electrical current, regardless of its strength, with respect, as conditions determine the ultimate outcome of every electrical shock. The large number of deaths attributed to low voltage currents is due to the fact that more people have access to the low tension current than to high voltage currents. Fewer accidents occur on the higher voltage in proportion to those working in and about it because fewer men work it and those compelled to be near it have a wholesome respect for its power to do harm and have been trained in the proper safeguarding of their persons. Treat all electric current as dangerous and especially so if the electrical equipment has not been maintained in a proper manner.

A second erroneous theory is that shock from a current of 550 volts or higher means almost certain death and that resuscitative measures are fruitless. Countless lives have been sacrificed to this erroneous belief that might have been otherwise saved had the victim been given the benefit of the doubt and attempts made to resuscitate them.

The fact is that many of the cases of electrification by higher voltages show the greater percentage of resuscitations and that they have been more easily resuscitated than those of lower tension currents.

The amount of voltage does not always govern the severity of the shock. This idea has resulted in the doctor being called to the scene of the accident and being advised of the strength of the voltage received, has at once announced the futility of resuscitative effort and after superficial examination has pronounced the victim dead and left the scene, only to experience the humiliation of later being recalled and learning that the victim's fellow employes had attempted resuscitation as they had been instructed and the patient revived. Gentlemen, this is distressingly frequent; too frequent for us to ignore in these days of competition and adverse comment. It is an absolute fact that many of these so-called fatal shock cases were fatal only in neglect of resuscitative efforts. We must look upon all of these

apparently dead cases as suspended animation and treat them as living by supportive measures such as artificial respiration until we are positive that life has departed permanently.

Another fallacy is the prevailing idea of the futility of working on the shocked and apparently dead individual for any great length of time. These cases are in a physiologic state of death and while it is a fact that many have been killed instantaneously by the action of the current on the heart producing ventricular fibrillation still a large proportion of them have had a paralysis of respiration due to the action of the current on the respiratory center in the brain and if supportive measure, as artificial respiration, be given at once and persisted in for a long period of time, many of them will be saved. Permit me here to quote a few statistics, which, dry as statistics are, will be enlightening as well as encouraging:

Current	Voltage	Time to Resuscitate
AC.	110	2 hours.
AC.	200	16 minutes.
AC.	220	1 hour and 20 minutes.
AC.	240	1 hour.
AC.	400	2 hours, 5 minutes.
AC.	1,000	17 minutes.
AC.	2,300	3 hours.
AC.	4,000	1 hour.
AC.	20,000	24 minutes
AC.	11,400 to 33,000	5 cases each took 1 hour to resuscitate.

These figures of one group will readily show that voltage and length of resuscitation are not stable; 69 per cent. of this group the victim fell or was thrown from the current source, period of contact brief and full force of current probably not exerted; 23 per cent. were pulled away from the current conductor so must have received a comparatively full volume of the current while they were in contact. A definite amount of time must have elapsed during the instant of contact and rescue by fellow workmen. In 8 per cent. the current had to be shut off before the victim could be removed. From this we can all learn a lesson. Look upon all electrical apparatus with awe and respect. Look upon all electrified or shocked persons as alive, in a state of suspended animation or physiological death. Persist in resuscitative therapy instituted at once after rescue and watch the death rate come down in proportion to the amount of resuscitative effort and knowledge dispensed.

Records from another group show that the



greatest number of electric shock cases occurred between the hours of 9 a. m. and 11 a. m. and between 2 p. m. and 3 p. m. Is the former due to the increased activity of the worker and on account of his feeling refreshed from his night's rest makes him act in an impulsive manner and in his haste fails to take the necessary precautions? In the latter is this frequency of electric shock due to the let down of the worker after his noonday meal plus the fatigue of his work responsible for this frequency period?

The time of year for the greatest number of electric shock accidents in one group are the months of June and August. Is this due to heat and atmospheric conditions surrounding the victims? Are workers in these months more susceptible to electric shock due to their clothing and bodies being wet with perspiration, thereby reducing the skin resistance and producing a more favorable ground? These summer months are the greatest construction periods and there is a greater force of men engaged in electrical work during this period.

*Which Current Is Considered the Most Dangerous to Life?* This is a much disputed question, but taking everything into consideration and conditions being equal, it is the alternating current with its frequency of reversal of current flow. As a rule, low tension alternating current up to 300 alternation is more dangerous than with the frequency over 4,000 per second. Proof of this is in the use high frequency current is put to in medical practice. High frequency currents passed through the body for long periods of time may become very harmful. The greatest danger lies in the fact that a low tension current with a low frequency acts upon the heart, producing a fibrillation from which no recovery is possible.

It has been demonstrated that, all things equal, an alternating current of 400 frequency is as dangerous as direct current of the same tension and frequency. Currents alternating on a frequency from 25 to 300 per second are three to four times as dangerous as direct current of the same potential. From the medical man's viewpoint, there should be no need of determining the most hazardous current but to treat it as equally hazardous and give the victim the benefit of the doubt that they are still potentially alive and can be resuscitated.

*What Determines the Severity of Electric Shock?* Many factors must be taken into consideration as to what determines the severity of electric shock to a person.

The strength of the voltage and the amperage of the current.

The nature of the current whether direct or alternating.

The character of the ground connection, whether wet or dry.

Whether the day is clear or rainy. The latter would, of course, be more favorable to severe shock.

The season of the year. Summer with its heat and humidity and the worker's more free perspiration and wet clothing. Winter with its snow and ice underfoot.

The length of time the victim is in contact with the current.

The portion of the body and extent of surface presented to the contact. The brain and heart areas being the most susceptible to the force of the current.

The pathway that the current takes through the body and its passage in close proximity to the heart.

The state of health has some bearing as to shock severity, but it is still debatable, as we personally have had cardiac, renal and lung disease present in individuals who were shocked severely and who did not appear to be harmed by the passage of the current.

The mental state plays a prominent part in electric shock, as the fear element produces a debilitated state. Records show that when a thing is expected to happen and a person steadies and prepares himself to meet the crisis, he is able to withstand the shock better than if it came unexpectedly and unannounced and the fear element pictures instantly that the dread thing is happening.

It has been stated by some writers that a new man about electric machinery was more susceptible to the current than the old veteran. To my mind and from experience this cannot be true and there are many factors to take into consideration that would lay such an assertion open to debate.

Personally I believe one of the greatest factors in the severity of electric shock rests in the manner in which the victim was rescued from the

electric contact whether he was released with one movement or whether he was permitted to recontact the conductor and receive subsequent shocking. This I know will account for some of the deaths resulting from a moderate tension current where the first shock would not be fatal, but the second severe shock produced the damage to life.

The secondary injuries received by the victim of electric shock play an important part in the severity of the shock and determine the outcome.

*What Are the Experiences or Sensations Felt by the Electrified Person?* I can answer this with some degree of authority both from my own personal experience with electric current and from the information given to me by those who have experienced severe electrification. I was grounded with a voltage of 550 direct current in the steel structure of an auditorium with my limbs around a steel girder and holding with the left hand and arm to a steel center column while with the right hand I reached out to cut a line that was supposed to be dead with a pair of steel pliers which were not of the safety insulated type so commonly in use today. My second electrification was on an alternating current of 1,000 volts while in direct contact with a copper trolley feeder.

Many, on the instant of contact with the current, lose consciousness at once, while others remember everything up to the point where they were pulled free and all was blank until they were coming out under artificial respiration, when they could hear what the rescuers were talking about and could feel pressure being made upon their backs.

The one and greatest sensation is that of fear in all its dreaded form. Fear of dying, fear of being burned, fear of falling and being crippled. It seems as if your entire life passes before you in panorama form. This lasts only a fraction of a second, but a lifetime passes in review. There is a sensation of powerful blows being struck all over the body, especially at the back of the neck, and powerful muscular contractions seem to bend one into all sorts of contortions, when in fact, there is only a contraction, slight in some cases, that is visible to the spectator. The feeling is that one cannot breathe. Continuous contact with the current causes an anesthetic feeling akin to going under a surgical anesthesia. Sen-

sation is numbed and you fall into oblivion. On talking with others who have been shocked I have been told by some that they never remembered anything after they hit the current, while others related similar experiences as my own. I can only say, gentlemen; that the sensation is very well expressed in the phrase: "It won't be long now," and you will have to take my assertions as a fact that I do not believe any of those who will discuss this paper will submit themselves to the electric current to disprove my statements.

*What Are the Conditions Produced Upon the Human Body?* The conditions produced upon the human body by the electrical current depend upon the source, character, voltage, amperage and resistance involved. There are painful shocks to the central nervous system.

Paralysis of brain centers affecting the functions of the heart and lungs.

Unconsciousness of a lesser or marked degree.

Paralysis of voluntary skeletal muscles.

Paralysis of involuntary muscles of the heart and lung preceded by painful muscular contractions.

Hemolysis or blood disintegration. Excessive fluidity of the blood.

Creation of excessive heat both on surface and within the body and brain. The highest temperature we were able to record was 140 degrees within the body while surface temperature at point of contact has been much higher. In some cases the temperature within the skull has been at the steaming point. This in itself is sufficient to cause death.

The amount of destruction of tissue depends upon the current, contact and resistance of the tissue. The greater the resistance the greater the heat generated, and therefore, the greater the destruction or burn of the tissue.

Inability of action, mental and nervous instability and if the contact is prolonged long enough there may be a cremation and death.

The eye findings soon after rescue have shown a widely dilated pupil, both equal and reaction lost to light. Intraocular examination shows in some a foggy appearance of the lens, an anemia of the retina with the arteries only showing a hair line thickness and appearance of beading. In some cases it has been reported that there was



a star fracture of the lens but we cannot vouch for its value.

*What Causes Death From Electric Currents?*

The theoretical causes of death from electrical shock may be given as: general instantaneous cell death (Fritz Schuyzer) — lightning. Living matter, as we know it, is in the living cell which is a microscopical globule having a cell nucleus and a sharply defined cell surface. These small globules are placed in a cell fluid containing sodium, potassium, magnesium and lime salts forming combinations with chloric, phosphoric, sulphuric and carbonic acids. This composes the electrolytic fluid and holds a static charge of contact electricity so that the molecules repel each other and thereby gain stability. The surface of the cell nucleus and cell periphery hold this static charge. So long as this cell activity exists, its chemical activities persist and this is the energy source of life. Might not this be the so-called soul of the body? So long as the surface tension remains intact, life goes on, but permit an outside current (Electrical) to enter living tissue, an ionic change occurs of an electrolytical character, the colloidal matter changes from a solution to a jelly and if the outside electrical current stops, and this fluid goes back into solution then life will return. If the outside current persists then the cell fluid remains jelly and life becomes extinct. It requires a large direct current to destroy cell electrolysis. Alternating current excites the movement of the ions in such a manner as to excite violent vibration within the cell and surface tension is broken.

A second theory is brain death caused by an intensive molecular concussion of nerve cells of the central nervous system analogous to cell death as described. The nerves, composed of fine, minute, nerve fibers capable of transmitting electrical stimulation, and in man, the central nervous system, is a pathway of conduction for electrical currents. When the current enters the body, it is conducted to the various voluntary and involuntary muscles. The muscles made up of minute fibers are sensitive to outside electrical stimulation and the excitation causes contraction. If this is rapid and prolonged the muscle is soon fatigued. Involuntary muscle fibers contract slowly, while voluntary muscle fibers contract quickly. The heart muscle, being striated and suitable for fast work and the fibers

being short, ramify and are surrounded by a network of minute blood vessels. The heart being an automaton works without rest through life. If the heart stands still, heart nutrition is interfered with, oxygen being unobtainable, the heart slows up, rests and will not resume its work. This is known as heart death, through stoppage of circulation from over excitation of the muscle fibers of the heart from the electrical current. (Heart fibrillation.) In heart death any interruption of the normal, rhythmical heart action will produce circulatory disturbance and it stops. The heart may give evidence of resuming its work. The blood pressure rises at first and then drops slowly. If the outside electric current stops the heart may try to resume its function, but if the current persists the blood pressure drops to zero and death comes on. When circulation is interfered with, anemia of the brain, which is due to oxygen starvation and energy producing glycogen, a fluttering or fibrillation comes on and death soon follows. Heart muscles are especially sensitive to low voltage currents and to the frequency of alternating current. It is easy for these currents to reach the heart by way of the blood stream. The current of higher voltage apparently follows other conducting pathways and the heart does not become excited, but the respiratory function is paralyzed.

Electric current produces death directly and indirectly, the first by a sudden shock causing a temporary arrest of the heart and respiration without producing a permanent lesion, but this is rare.

The cause most readily accepted is that of primary heart failure from fibrillation of the ventricles and paralysis of respiration through the central nervous system. Respiratory paralysis is first induced by an inhibition of respiration due to the action of the electrical current on the respiratory center in the brain. Then follows anemia of the brain producing syncope and later death.

Indirect causes of death may be a trivial shock, harmless in itself, that would cause the victim to fall and the resulting injuries sustained be the cause of death.

Death may ensue subsequent to the electrical shock and be a matter of a few days or weeks such as exhaustion from debilitating injuries received at time of accident or gangrene, sup-

puration or inflammation resulting from injuries received foreign to the electric shock.

Electric burns, on account of their severity, may cause death subsequent to the initial electric shock.

Other pre-existing pathological conditions antedating the shock may be aggravated to such an extent that death follows. The terrific heat generated within the tissues of the body and especially in the brain is sufficient to cause death.

Then the method of rescue from the electric conductor, whether the victim was permitted to recontact the conductor with a subsequent re-shocking, which resulted in death, which would not be otherwise were he to receive the one shock only.

Sometimes the stomach contents are forced up into the throat by the violent contraction of the muscular coats of the stomach and the patient strangles on his own contents.

*Remote Effects of Electric Shock.* This is a subject over which there has been a great deal of controversy and from medical literature there is nothing on record to support the grotesque claims that are often made in a court of law by a patient who has previously received an electric shock who attributes all subsequent pathological conditions as dating from an electric accident some months previous. Electricity is surrounded with mystery to the average person and the fact that they have been shocked, be it trivial or severe, and according to whom the shocking agent belonged, determines many times the resulting claims for damages for alleged conditions arising out of the previous shocking incident. In court it is amazing the testimony that will be given by the average medical man as to the factors on which he bases his claims that his patient's present condition was due to some remote electrical injury.

In my short experience of only 20 years in electric injuries we have yet to see any definite lesion resulting from minor or severe electric shock except those resulting from the electrical burns where a part was definitely destroyed. Alleged cases of organic nervous lesions, epileptiform attacks, mental confusion, delusions of persecution, multiple sclerosis, brain lesions of progressive paralysis, paralysis of single or groups of muscles, sensory changes, peripheral nerve lesions (except where actually destroyed

at time of injury by the resulting burns), arthritis of joints, anklyosing of joints and atrophy of muscles I have often heard of and read about but there was never any positive fact that these resulted from any electric shock and many cases recover remarkably after they have received their share of the damages awarded.

We often find immediately after the shock some mental and nervous symptoms and partial inability to coordinate normally the muscles but where this has occurred their stay has been temporary and eventually disappeared. Personally in 20 years experience I have not seen a permanent disability except those due to tissue destruction from the electric burns. Very often legal debate arises as to whether death was caused by electric current or from other causes. To determine this a thorough search should be made and carefully over the entire body for evidence of what is known as the contact spot. It is the spot where the current enters and leaves the body and may be found in odd locations. If found it is almost direct evidence than an electric current had been present.

The presence of electric burns of one or more degrees may be present; these may be trivial or extensive or may be absent altogether.

The teeth early lose their lustre.

The surface temperature may be high especially at point of contact and the temperature within the body and especially in the brain may be very high.

Rigidity of the body first sets in in those muscles nearest the contact spot.

Hemolysis of the blood may be found by microscopical test and there may be a foggy appearance of the eye and some authorities say a star fracture of the lens.

The post mortem room shows little pathology following electric shock except in cases where the contact has been prolonged and the current high. Some pathologists have reported lung and brain odema, contracted aorta, empty ventricles of the heart, abnormal softness and pliability of the finger and toe nails.

The marked fluidity of the blood is indicative of electric shock but is also found in drowning and asphyxiation cases.

Many people have died of natural causes or by falls, etc., where there was no actual contact with an electric current but still the liability



was placed upon the public utility company as being responsible. Until we find in the autopsy room more authentic findings as to the cause of death we should be very careful as to our claims that the death in question was due to electric current.

*Treatment of Electric Shock and Its Complications.*—We divide the treatment into three classes, prevention, rescue and first aid as it is essential to surround all electrical hazards with safety devices and rules governing safe practices so as to prevent electrical accidents resulting. You are not concerned with the actual physical safeguarding of electric apparatus further than to be certain that all appliances used by yourself are in proper repair and that you will not undertake to repair electric lines but secure the service of those qualified to make the necessary installations and repairs. The essentials of rescue from electrical currents are as follows:

First. Release from the current in the quickest time and safest way possible. Each second that the body is in contact with the current lessens the chances of resuscitation. If the quickest way to release from the current is pulling the switch, then do so at once. Many times these accidents occur at places remote from the switch and one must use his own ingenuity in making his rescue, as each case in itself is a distinct problem.

The rescuer must exert due care and caution that in his efforts at rescue he does not do something that will cause himself to be electrified.

All rescues should be made with one hand, preferably the right, as you are not apt to receive a shock severe enough to be fatal. Our employees are instructed to put the left hand in their pocket and use the right hand only. If they receive the current it will go into the right hand and out of the right lower extremity and will not traverse the chest and heart area which would be done if the two hands were used in the rescue. The danger of the current lies in its direction within the body and transversely across the chest is dangerous.

Avoid all the skin surfaces of the victim's body.

Keep away from the pockets and shoes of the

victim, as a severe shock can be obtained from metal, if present, such as knife, tools or keys.

Make use of a piece of rope, a belt, necktie or even your dry coat. Loop it about the part most easy to separate from the current and remove with one quick pull. Do not rock the patient as you will only cause him to be reshocked with probably fatal results or cause multiple terrific burns from the flashing arc between patient and conductor at time of break of contact.

If a dry stick of wood is at hand, use it to pry the patient away from the contact. Stand on dry boards if possible.

The text books will tell you to use rubber gloves, stand on insulated materials and use mackintosh cloth in your rescues. After 20 years I have yet to learn of one rescue made with these things at hand except where line men had on protective gloves at the time of accident.

When your man is free of the electrical current begin your method of artificial respiration at once and persist in same until the patient breathes or rigor mortis develops and the body turns cold and signs of death are positive. I cannot emphasize too strongly the necessity for early instituting and persisting in artificial respiration. When things look despairing, you will often be rewarded with signs of returning animation.

These cases occur in remote and isolated places where it is difficult to secure the services of a physician, and if he is available, a certain amount of precious time must of necessity elapse before he arrives. As each second is valuable, it is evident that someone who is at the scene of accident must institute this resuscitative effort at once and keep it up until the doctor arrives. This necessitates the training of the layman in this life saving measure.

Please understand me clearly that in advocating the instructing of laymen in resuscitation that it is not our intention to make Doctors out of the workers or usurp the prerogatives of the medical man in the least respect. They merely function from the time of the accident until medical authority arrives and after that they are governed by the Doctor's orders. I might say that in many instances employees of our various companies have performed resuscitation and when the Doctor arrived they would tell the employee to continue his efforts,

and they would conduct their examination and give what additional treatment they thought necessary.

Then we have the other side of the question where the Doctor arrived and ordered the employee to stop his resuscitation while he made his examination and gave his treatment. Sometimes he has told the employee that he was doing the wrong method and that he never had heard of the Shaeffer Prone Pressure method and would proceed to show the employee his ideas of artificial respiration. After doing a few perfunctory movements of the arms, etc., they would desist and tell the employees the patient was dead and further work useless. After pronouncement of death the Doctor would depart, the employees, resuming their resuscitation, have revived the patient and called the Doctor back to attend the other injuries of the patient much to the Doctor's chagrin. Please do not discourage the layman in his resuscitative efforts as he is sincere in his work and after twenty years of teaching public utility employees this work I have never received but the finest reports and commendation from the medical men as to the value of their training.

*Treatment of Electric Shock.*—I do not wish to tell you which form of artificial respiration you as physicians should use in the treatment of electric shock but may I give you the description of the Shaeffer Prone Pressure Method with which I have been closely associated the past twenty years and which method is responsible for the saving of those employee lives in the companies with which I have been associated.

*Shaeffer Method.*—Lay the patient on his belly, one arm extended directly overhead, the other arm bent at the elbow and with the face turned outward and resting on hand or forearm so that the nose and mouth are free for breathing. Kneel, straddling the patient's thighs with your knees placed just below the patient's hip bones or opposite the trouser pockets. The palms of the hands should be placed on the small of the back with the fingers resting on the ribs, the little fingers just touching the lowest ribs, with the thumbs and fingers in the natural position encircling the contour of the ribs. With arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. Do not bend your el-

bows. Now immediately swing backwards so as to remove the pressure from the patient and rest yourself on your heels. After two seconds' rest swing forward again thus alternately exerting pressure and removing it at frequent intervals. This can be kept up indefinitely and these respiratory movements should be done at a ratio from 20 to 40 per minute which is contrary to the teaching of theoretical text-books and doctors. I have seen many cases of resuscitation and those successful were the ones on which the rate was as given above—16 to 18 per minute are not sufficient to replace the air in the lung. The physiologists may say I am wrong but practical experience has taught me otherwise.

When artificial respiration is well under way, you can direct an assistant to loosen any clothing about the neck, chest and waist. Also with the finger remove any foreign material from patient's mouth such as tobacco, gum, or false teeth. Pull the tongue forward so it will not obstruct the air passages. It is suggested that the assistant exert gentle pressure on the tongue pulling it forward and releasing it at regular intervals (La Bordes Method). Maintain body warmth by the use of blankets and hot bags if available. We as a routine advise the use of friction of the skin surfaces of the upper and lower extremities rubbing the parts toward the heart. Over the heart area gentle counter shock is rhythmically performed. Aromatic spirits of ammonia are held near the patient's nose so that the air as inspired into the lungs from the artificial respiration will carry the stimulation to the respiratory centers. Nothing is allowed to be given by the mouth as cases of strangulation have resulted from pouring liquids into the trachea instead of the esophagus.

The use of adrenalin and other heart stimulants have not met with success in actual field cases but they should be given a trial as to their value. The use of strychnine, nitroglycerine, caffeine, sodium benzoate have been recommended and can be given at the discretion of the physician. Bleeding I am confident is contraindicated in this class of cases as the blood pressure is already below normal and removing more blood only tends to reduce the already low tension. Spinal puncture to my mind has no definite value and in the field it cannot be performed without censure and danger. Cardiac massage



is an hospital procedure. Also the use of the faradic current is to be used only where the case is in the hospital.

Rectal dilatation should be tried for its reflex on the respiration.

Mechanical devices that have the principle of forcing air into the lungs and sucking it out is not without hazard and is unscientific in its theory. The use of the respirator or barispirometer can only be used in the hospital and may be of service after the patient has been given the manual method enroute from the scene of accident to the hospital. This respirator works on the basis of creating within an enclosed air tight cabinet an alternate negative and positive pressure on the victim's body which is within the respirator with the head outside the cabinet. By means of an air pump, electrically driven, a sufficient amount of air is withdrawn from the cabinet which in turn causes the chest to collapse forcing the air from the lungs of the patient. Then the air within the cabinet is brought back to normal pressure and atmospheric air enters the lungs of the patient and we have the inhalation or inspiration phase of respiration. This machine, on account of its cumbersome construction, is not practical for use in electric shock in the field. There are no definite findings as to the machine's real value in electric shock cases. There are many different forms of respirators and mechanical devices for performing artificial respiration and each has its advantages and disadvantages, the latter in such predominance as to make it of questionable character in suspended animation from electric shock. We can only guess what the future holds as regards mechanical methods and until then we must rely on the manual methods as performed by the layman at the actual scene of the accident.

We have during the past two years conducted a careful search of the literature pertaining to electric shock and it is amazing that there is such a scarcity of information of this hazard that is so prevalent. It deserves the attention of the Medical Profession and I sincerely hope that through the efforts of this Society with the new administration that the next meeting will bring out this subject in the form of a symposium on electrical accidents.

We have not spoken about electric burns nor the electric flashes to the eyes that are frequently

complications of electrification. The time allotted this paper is too short to include a description of them. We have many electric shocks which result in both burns and flashes which do not cause the patient to lose consciousness. The current from which these shocks are received range from 110 volts to 150,000 volts alternating current and 500 to 660 volts direct current. All those who come in contact with electric energy are not shocked severely enough to lose consciousness but the cases where unconsciousness and death do occur are of such frequency as to cause us to exert effort unlimited to prevent such occurrence.

The charts which follow show the electrification cases that have come under our observation during the past twenty years and an effort has been made to use only those cases that have been fully described and for which records have been kept. The first chart will show the Group H series.

### ELECTRIFICATION CASES (ELECTRIC SHOCK)

Group H Series								
Group Number	I	II	III	IV	V	VI	VII	Total
No. of cases.....	51	33	7	47	14	31	22	205
Persons recovered...	37	23	5	14	11	15	7	112
Fatal cases.....	14	10	2	33	3	16	15	93

Note: 112 persons recovered and survived the electrification. 93 persons died from the direct and indirect effects of the electrification. An analysis of the 93 fatal cases show the following:

FATAL CASES								
Group Number	I	II	III	IV	V	VI	VII	Total
Persons died 6 hrs. to 3 months after electric shock....	1	1	0	1	0	3	6	12
Persons dead on arrival after accident	3	0	0	2	1	1	0	7
Persons died after resuscitation done from 15 minutes to 8½ hours.....	10	9	1	28	2	12	9	71
Died but no resuscitation done.....	0	0	1	2	0	0	0	3
Total fatal cases..	14	10	2	33	3	16	15	93

Note: 12 persons were restored to consciousness and later died from 6 hours to 3 months after the accident. Deaths due to complications and indirectly due to the electric shock.

### INDIRECT CAUSES OF DEATH FROM ELECTRIFICATION

Skull Fracture .....	2	Septicemia .....	2
Tetanus .....	1	Toxic Shock (burn) .....	4
Spine Fracture .....	1	Lung Complication .....	4
Total Deaths .....	14		

Note: 10 persons were considered dead on arrival because of the severity of the destruction of the body tissues (charring, etc.). Length of time patient was in contact with the current (hours) and general state of body when discovered (rigor mortis) showed beyond a doubt that the person was dead. Resuscitation was performed nevertheless on most of these cases until pronounced officially dead by a physician.

Seventy one of these cases were pronounced dead after resuscitation was performed for periods of time from 15 minutes to 8 hours. It was in this group of cases that we had to contend with deaths from ventricular fibrillation of the heart. The length of the resuscitative effort shows the training of our first aid men to institute without delay artificial respiration and persist in its application until there is no doubt as to the death of the subject.

Of the 112 recovering from the electric shock and which were followed up over a period from one to twenty years through the periodical medical survey in our companies we were unable to find a single case of brain or spinal cord lesion developing as a remote result of electrification, notwithstanding the fact that these conditions are very frequently put forth as evidence in the medical testimony of the average physician in litigation suits for damages.

The only permanent defects ever found were those where tissue or an anatomical part had been destroyed by reason of the heat generated in the form of burns due to the resistance of the skin surface.

RESUSCITATION RECORD

Group Number	I	II	III	IV	V	VI	VII	Total
No. of cases.....	51	33	7	47	14	31	22	205
Successful resuscitations .....	30	15	4	12	7	8	3	79
Unsuccessful resuscitations .....	15	10	2	33	3	16	14	93
Recovered without resuscitation .....	6	8	1	2	4	7	5	33

Note: There were 79 cases on which resuscitation was performed with successful results. 33 recovered from their unconsciousness without the need of artificial respiration making a total of 112 who recovered from their electrification.

The following chart will show the nature and strength of electric current causing the electrification of this Group H series, both the successful and unsuccessful cases.

ELECTRIC CURRENT AND VOLTAGE

Successful Cases (Living)

Alternating Current	Group Voltage	I	II	III	IV	V	VI	VII	Total
AC.	220	0	1	0	0	0	1	0	2
AC.	440	0	2	0	0	0	1	0	3
AC.	1,500	0	1	4	0	0	0	0	5
AC.	2,200	0	0	0	0	0	0	2	2
AC.	2,300	1	2	0	4	0	8	1	16
AC.	4,000	0	1	0	0	0	1	1	3
AC.	5,200	0	0	0	0	0	0	1	1
AC.	6,600	0	10	1	1	0	0	0	12
AC.	6,900	0	0	0	6	0	0	0	6
AC.	11,000	0	1	0	0	0	0	0	1
AC.	12,000	0	0	0	0	0	0	1	1
AC.	13,200	0	3	0	0	0	0	0	3
AC.	32,000	1	1	0	0	0	0	0	2
AC.	33,000	0	0	0	3	0	4	0	7
Total	.....	2	22	5	14	0	15	6	64

Direct Current	Voltage	I	II	III	IV	V	VI	VII	Total
DC.	90	0	1	0	0	0	0	0	1
DC.	550	35	0	0	0	11	0	1	47
Total	.....	35	1	0	0	11	0	1	48
Total A.C. & D.C.		37	23	5	14	11	15	7	112

Note: The greatest number of cases of electrification successfully resuscitated, on the alternating current of 2300 volts, was 16 persons, and 6600 volts with 12 persons. On the direct current there was 47 persons receiving electric shock from 550 volts. This 550 volts is that most common in use in transportation industry. It will be noted on the high voltage of 33000 volts alternating current there were 7 persons successfully resuscitated.

ELECTRIC CURRENT AND VOLTAGE

Unsuccessful Cases (Dead)

Alternating Current	Group Voltage	I	II	III	IV	V	VI	VII	Total
AC.	110	0	0	0	1	0	0	3	4
AC.	220	0	1	0	0	0	0	0	1
AC.	2,200	0	0	0	0	0	0	6	6
AC.	2,300	1	2	0	14	0	11	0	28
AC.	4,000	0	1	0	0	0	0	0	1
AC.	4,400	0	1	0	0	0	0	0	1
AC.	4,600	0	0	0	1	0	0	0	1
AC.	6,600	0	3	1	2	0	0	2	8
AC.	6,900	0	0	0	3	0	0	0	3
AC.	7,000	0	0	0	1	0	0	0	1
AC.	11,000	0	2	0	2	0	0	0	4
AC.	12,000	0	0	0	0	0	0	4	4
AC.	13,200	0	0	0	2	0	0	0	2
AC.	23,000	0	0	0	1	0	0	0	1
AC.	33,000	0	0	0	5	0	4	0	9
Total	.....	1	10	1	32	0	15	15	74

Direct Current	Voltage	I	II	III	IV	V	VI	VII	Total
DC.	550	13	0	0	0	0	1	0	14
DC.	600	0	0	0	1	3	1	0	4
DC.	1,500	0	0	1	0	0	0	0	1
Total	.....	13	0	1	1	3	1	0	19
Total A.C. & D.C.		14	10	2	33	3	16	15	93



Note: The greatest number of fatalities due to electrification was in the alternating current group which claimed 28 persons on the 2300 voltage. The 550 volt direct current claimed 14 victims. On the higher voltage of 33,000 volts there were fewer victims (9) than on the lower voltages. These figures show that the greater number of deaths are on the lower voltages than the high.

As regards which voltage is safe, there can be no dividing line, as many factors determine the severity of electric shock. We can only treat all current with the greatest respect as everything being equal and under like conditions, all current is dangerous to life even as low as 90 volts in our own experience.

#### METHODS USED IN RESCUE OF VICTIM

(Successful Cases)

Group Number	I	II	III	IV	V	VI	VII	Total
Victim freed self...	9	6	0	2	1	1	1	20
Victim fell or thrown	8	14	5	8	1	10	4	50
Victim rescued by another .....	20	3	0	4	9	4	2	42
Total .....	37	23	5	14	11	15	7	112

Note: Of those persons who were resuscitated 50 were thrown free of or fell clear of the current; 20 were able to free themselves; 42 were so held to the current as to necessitate rescue by a fellow man. If these last 42 were not rescued by men at hand it is only plausible to expect them to have been fatal.

#### METHODS USED IN RESCUE OF VICTIM

(Unsuccessful Cases) Died

Group Number	I	II	III	IV	V	VI	VII	Total
Victim freed self...	0	0	0	1	0	0	3	4
Victim fell or thrown	0	5	1	14	0	10	9	39
Victim rescued by another .....	14	5	1	18	3	6	3	50
Total .....	14	10	2	33	3	16	15	93

Note: 50 were removed or rescued by another person from the electric contact and 39 fell or were thrown free of the current. It has been commonly said by those in the electrical industry that those victims who were shocked and fell from high places to the ground seemed to be easier to resuscitate and were not as apt to be fatal as those who were held to the current. It was stated that the act of falling and the counter shock of landing on the ground encouraged a return to animation. This cannot be accepted as the truth for many things must be taken into consideration, lack of perfect

ground, small space of time in contact with the current, current throwing patient away from contact. The most important factor in rescue work is the immediate removal of victim from electrical conductor in the shortest possible time and avoid reshocking patient by not pulling them clear of the current at the first attempt.

Owing to the incompleteness of the record as to the complicating injuries received in addition to the electrification of the Group H series we will not be able to give the electric burns or electric flashes to eyes for this group. We will, in order to disabuse the minds of some of my audience state that electric burns and flashes carry with them a high percentage of deformities and disabling conditions, report here from Group A of another series. It is difficult to separate with any degree of accuracy first and second degree burns as one merges into the other. The burns listed here are first degree where the skin was reddened and blister formation present. Second degree burns where the destruction of the skin itself was evident and third degree will be where there was extensive destruction of underlying tissue and of nerves, blood vessels, etc. There was no loss of life in this group due to the burns nor from resulting complications nor were there any major infections developed in this group of burns.

#### GROUP A. ELECTRIC BURNS

Number of first degree burns.....	276
Number of second degree burns.....	130
Number of third degree burns.....	90

Total burns, group A..... 496

#### ANATOMICAL PARTS BURNED

Fingers and hand.....	258
Wrist, arms .....	58
Face, head, neck.....	139
Feet and toes.....	9
Ankles and legs.....	20
Thorax and body.....	12

Total .....

Number of loss time burn cases.....	220
Number of burns, no lost time.....	276
Total time lost account burns.....	2,334 days
Average loss time per case.....	4.7 days

Note: These combinations of anatomical parts were necessary on account of the burns extending from one part to another such as from fingers to hands and was counted as one burn. Also where two legs or two hands were burned was classed as one leg and one arm burn. There

were no permanent deformities or loss of function in this group except 5 amputations of fingers and toes due to gross destruction. Only 7 cases resulted in any marked scar disfigurement and these only very faint after the duration of one year. All scars are pliable and contractures are lacking and keloid formation in two cases.

#### ELECTRIC FLASHES TO THE EYES—GROUP A

Electric flashes to the eyes.....	389	cases
Eye flashes, no lost time.....	267	cases
Eye flashes, lost time.....	122	cases
Total days lost account eye flashes.....	267	days
Average day lost account of eye flashes.....	0.77	days

Note: Of the 389 cases in this group, there was no permanent loss of vision, nor was there any defect of sight developed afterwards. These cases were kept under observation yearly and no difficulty experienced. This is contrary to the usual claim made for damages in litigation suits elsewhere.

In closing we wish to make to each of you here present a personal plea that you use your influence toward the Society disseminating information regarding the hazards of electric energy and the methods of resuscitation to the people in your community.

In fact the medical profession is losing a golden opportunity in failing to encourage this work among the lay public.

The public utility companies in Chicago with which I have been associated the past twenty years have instructed their employees in this life saving measure and while we have been the pioneers in this movement in this country we have been the medium of saving many employees from premature death and numerous people who were not connected with the industry in any manner from a like fate. This same procedure has resulted in saving a large number of people from drowning and asphyxiation from lethal gases.

We maintain a first aid school in session throughout the year where the employees receive this training. These men are located at strategic locations and these men have saved many people by their prompt service until the arrival of medical authority.

In one year we trained over 183,000 school children in the metropolitan area of Chicago through 483 lectures and conducted examinations of the pupils in many schools in this work.

Graduates of the Chicago Rapid Transit Company first aid school won the first three out of

four City Championship in First Aid in Chicago in competition with many other industrial teams.

Some 60 medals have been awarded to employees in life saving and meritorious first aid to the injured.

This work should be done by the medical profession through their various organizations and it is only by interesting ourselves in this subject that we will learn better methods of resuscitation. We will be able to reduce the cases of fibrillation of heart cases in electric shock only by constant research and study. These cases should not be allowed to die for want of interest and research by the medical profession and we cannot deny the fact that this research lies within the scope of our profession. I thank you for your attention.

#### DISCUSSION

Dr. Ciney Rich, Decatur: I enjoyed this paper very much indeed. As to the things he has said, I have nothing to add. I merely wish to mentioned a personal experience which I had last August. I was doing a minor surgical operation and experienced some difficulty in the operation. It was a very hot day and I became saturated with sweat. I was working with an ordinary head light attached to the light socket. After I finished operating I did a thing which no one should do, walked to the sink, turned on the water and started to wash my hands. The instant my hands struck the water I experienced the sensations which Dr. Fisher described so well. It is an experience which no man wishes to have a second time. I was helpless. I do not think I lost consciousness; I was standing stiff. I could not see, nor speak, but I could hear. My hands were pulled out of the water as soon as the connection was broken and I dropped in a heap.

The reason for the shock was that the electric wire used in this light had a thin insulation which was not waterproof. I wish to make a plea to the doctors who do work with headlights to see that your wires are insulated properly with adequate insulating material, because if you do not you are going to have the same experience. I felt as though I had come to the end of my string when this thing happened to me. That very afternoon every wire in the operating room at St. Mary's Hospital, Decatur, was rewired with cables properly insulated and water tight.

Dr. C. P. White, Kewanee: There is one feature which I think should be added to this paper which is indeed a very good paper. That is the use of antitoxin in these electric burns, giving it immediately. A couple of years ago I had a case of a man burned with a high tension wire. Every bit of antitoxin in our hospital had been used in a case one of the doctors had at the same time. It was about fifteen hours after



the accident before the antitetanic serum was given to this patient and then only 1500 units. There might be some criticism because I know that at least 5000 units should probably have been used. Ten days elapsed and the patient was removed to his home town and placed under the care of a very competent man. Fourteen days from the date of the accident he developed tetanus. The doctor started to give him an intravenous injection of antitetanic serum, not knowing that he had previously received an immunizing dose of 1500 units, with the result that after the first drop or two the patient went into shock and for three or four hours there was a lot of trouble. Although this patient survived, it certainly brought home to us who had part in it the necessity of giving antitetanic serum quickly and then giving it in sufficient amounts to make sure tetanus is very unlikely to occur. It did not seem that this particular case needed antitetanic serum. The burn was severe. It was a burn of the neck and foot. The boy fell from a twenty-foot pole onto a grassy spot and it was not apparent that there was any particular dirt other than the natural dirt on the body accruing during his work as a laborer. Nevertheless that condition existed as stated.

Another thing which Dr. Fisher brought to our attention was to inform the medical men and the surgeons as well throughout the state of the necessity of allowing these first-aid groups to give first-aid and not to interfere with them too much. Only last year a doctor was called on one of these cases that occurred about five miles in the country. He took the patient away from the first-aid group to a hospital where they could use the pulmotor and by the time they got there he was dead. This was a very good man but negligent of the care of electric shock. I think the medical profession should take this rather seriously and we should disseminate the knowledge that such men as Dr. Fisher have tried to give us.

Dr. Frank Chauvet, Chicago: Dr. Fisher presented a very fine paper. I think he should stress the serious effects of low tension currents. Up to a few years ago it was not known that these low tension currents would produce injury. It was said that a horse would die from a 500 volt shock. We know in experimental work with currents up to 5,000 volts, that the higher voltages are uniformly fatal and accompanied by burns. In a series of experiments, which I conducted, dogs that were connected by the two hind legs and given an electric current of 110 volts showed practically no fatalities. Those connected by the front paw and hind paw on same side resulted in 65 per cent. fatalities. When the front paw on one side and the hind paw on the opposite side were connected, there were 100 per cent. fatalities. These animals were immediately opened so we could observe the heart. We found ventricular fibrillation. The auricles continued to beat quite frequently for three to five minutes and the dog breathed, while there were no ventricular beatings, only a complete fibrillation. The direction of the current going through the body is probably the most important matter.

In the dogs where the current was applied to the tip of the nose and the nape of the neck, death occurred in 50 per cent. Death was due to respiratory failure and not cardiac failure. A great many of our cases suffer shock with respiratory failure. Once the current goes through the heart, with the ventricles fibrillating, we have no record of resuscitation by any method, adrenalin or otherwise.

A great deal of our apparatus is exceedingly hazardous. We have toasters, percolators and vibratory machines in the bathtub. Those are the cases where they get an ordinary shock of 110 volts, undoubtedly passing from the arm or leg through the heart. Direct currents are not nearly so dangerous. They can stand 400 or 500 volts with direct current. If you interrupt that direct current the fatalities are enormous. In the dogs where the hair was dry a great many were not killed, but the dogs with wet hair had a high mortality. Those in which the hair was shaven with or without wetting were killed. Dogs weighing 20 to 30 kilos, given 110 volts were killed. Of those given 80 volts a few recovered. Those given 40 volts were killed only after exposure for 40 to 60 seconds, showing that the time element is important.

The big lesson to be derived is that there is danger from ordinary instruments. If the shock goes through the heart the cases are fatal. You will see electricians went their finger and test out a socket. If he is standing on a wet floor he will never try that again. The fatality from a current of 110 volts is practically 100 per cent. if the current traverses the heart because you have a definite fibrillation of the ventricle as proven on opening up dogs before and after such a current. In these cases we have no recoveries.

Hart E. Fisher, M. D. (closing discussion): As regards antitetanic serum, up to two years ago in our various companies we never had had any tetanus develop following electrical burns. In the early days, some twenty years ago, a question of the use of tetanus serum came up and for a period of a year we gave antitetanic serum as an anaphylactic. The distressing effects following the injection of this serum, especially in younger subjects, caused us to discontinue this practice. This was immediately following the war.

The one case that developed tetanus was in a man of approximately twenty-four years of age, who had a severe third degree burn and the source of his infection resulted from the use of blankets to cover him with in transport. This man developed a typical tetanus from which he died.

A few words about interfering with first aid work as given by the first aid layman. We have experienced the fact that these boys perform their work of resuscitation immediately after rescue of the patient and persist in their methods until the arrival of the doctor. Many times the doctor demands that they stop all resuscitation while he makes an examination of the heart or gives medication. This is useless, stopping the resuscitation, and often determines whether the man lives or dies. Any examination or medication can be instituted while resuscitation is in force. Many times the doctors insist

that the artificial respiration be stopped entirely and to my mind this is bordering on malpractice. If the doctors have nothing better to offer in their therapy, then they should at least permit this artificial respiration to continue.

In the past three years we have given 463 lectures to 183,000 school children on this subject, by invitation, and of these, some 4,000 examination papers were examined and marked for the schools.

In closing we ask that the medical societies interest themselves in this work of resuscitation and aid in disseminating the knowledge of its performance to the public.

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### THE DISABLED GALL BLADDER\*

ALFRED BROWN, M. D.,  
OMAHA, NEBRASKA

If advanced lesions of the gall bladder—which cause serious lesions of surrounding viscera and even threaten life—are to be prevented, the disabled gall bladder represents one type of biliary disease that must be recognized and treated more frequently than is at present the case.

So frequent have deaths from gall bladder disease become in the United States that the Bureau of the Census will no longer classify them with deaths from diseases of the liver. I am informed by the Bureau that figures for 1930, when this new classification was adopted, are not yet available, and the only figures they can furnish reveal that in 1929 gall stones alone caused 4,354 deaths in the registration area, for which the rate per 100,000 population was 3.7. This is a warning that gall stones are not the innocuous things that they are often believed to be.

Graham, Cole, Copher and Moore<sup>1</sup> state that studies of the work of others lead them to believe that 25 per cent. of the adult population have gall stones and probably an equal number have cholecystitis without stones. This means that from 40 to 50 per cent. of the adult population have disorders of the biliary system which may at any time give rise to more or less severe symptoms in the individual case. In 1926 Mentzner<sup>2</sup> published the results of his findings in 312 routine post mortem examinations performed at the Mayo clinic. In these he found evidence of cholecystitis in 66 per cent of the cases and in only 8 per cent. of the 612 cases had a primary diagnosis of cholecystitis been made. Mentzner

also states that only 5 per cent. of 49,659 new cases at the Mayo clinic entered complaining of biliary diseases as the primary symptom.

All these facts indicate clearly that serious disease of the biliary system is becoming more and more frequent. Naturally the question is raised: why is this so?

Diabetes mellitus has always been included as one of the main causes of gall bladder disease. The liver is the great sugar furnace of the body. In it the sugar ingested is changed to a chemical product—glycogen—capable of being assimilated by the body and in performing this biochemical reaction the organ is subject to constant stress if it is over pressed. When the Islands of Langerhans of the pancreas break down in their work sugar is excreted in the urine but before this time in many cases the liver is subjected to great metabolic pressure and appears to fail in another of its biochemical functions resulting in cholesterolemia and consequent gall bladder change. There is, therefore, a close relationship between the occurrence of diabetes mellitus and biliary disease, and this relationship seems to depend largely upon sugar consumption.

Now in 1917-1918 the per capita sugar consumption in the United States was 78.5 pounds. Since then the per capita consumption has risen markedly, reaching its peak in 1925-1926, when it was 114.4 pounds. In 1929-30 it was 103.3 pounds per person.

In other words, the average human liver of 1929-30 had to do 33.1 per cent. more work in sugar metabolism than the average human liver of 1917-18.

This is especially significant when the record of deaths from diabetes mellitus for the same years is considered.

During this same period, from 1918-1929, the deaths from this cause have increased steadily from 15.9 per 100,000 in 1918 to 18.8 per 100,000 in 1929, the peak being reached in 1928 when the rate was 19.0 per 100,000. All this, observe, has occurred in spite of the fact that insulin was made available to the medical profession in November of 1922 and has been used constantly since that time.

During the period from 1901-1905 the death rate from diabetes mellitus in the United States was 2 per 100,000, equalled by only one other country in the world, Porto Rico, which was the

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\*Read before Joint Session, Illinois State Medical Society, Springfield, Ill., May 17, 1932.



same, i. e., 2 deaths per 100,000 population. All other countries mentioned in the data of the Prudential Life Insurance Company had a higher death rate, the highest being Sweden with a death rate of 11 per 100,000. In the years from 1921-1925 the death rate from diabetes mellitus in the United States averaged 17 per 100,000, which was exceeded by only one country in the world, the Netherlands, which had a death rate of 18 per 100,000.

Thus we are led to the startling observation that in the space of twenty years the United States has changed from the position of equaling the lowest death rate from diabetes mellitus in the world to the position of next to the highest death rate of any country in the world from that disease.

During the years from 1918-1929 the death rate from alcoholism has increased from 2.7 per 100,000 in 1918 to 3.7 per 100,000 in 1929, and the deaths from cirrhosis of the liver of the "hob nail" type due to alcoholism have decreased from 9.6 per 100,000 in 1918 to 7.2 per 100,000 in 1929.

Deaths from typhoid fever, another of the common etiological factors in biliary disease, have, during the period from 1918-1929, decreased from 12.6 per 100,000 to 4.2 per 100,000, a decrease of 67.46 per cent. This means that the number of cases of biliary disease which might be explained on the basis of typhoid fever must be accounted for by other etiological factors.

I think it is fair to assume, from these facts, that part at least of the increased seriousness of gall bladder disease is due to the increased use of sugar as an article of diet among the people in this country and the consequent overtaxing of the physiological functions of the liver.

And inasmuch as the increase has occurred since the attempted removal, by law, of fermented malt and grape sugars from the diet of the average citizen of the United States, an important question may be asked: has the health of the people of this country been benefited by this social change—prohibition—as far as biliary disease is concerned?

*Pathology.* A study of the pathological lesions found in the gall bladder allows the disease to be divided into three types which may merge one into the other in that one, two or

three may be present at one time but nevertheless each type presents distinct characteristics peculiar to itself. These types are:

1. The biochemical type.
2. The mechanical obstructive type.
3. The infectious type.

Of the three types the most important from the standpoints of diagnosis and early treatment is the first or biochemical type. That one of the functions of the gall bladder is the concentration of the bile by absorption of fluid has been shown by the work of numerous investigators, Aschoff<sup>3, 4</sup> and Rous and McMaster<sup>5</sup> among others. If, during this process of absorption, there is present a high cholesterolemia, depositions of cholesterol ester will take place in the mucosa of the gall bladder and these give rise to further derangement of function of the organ. This process has been carefully studied by Boyd<sup>6</sup> who has demonstrated the deposits of cholesterol ester in the mucosa of the gall bladder by using the dissecting microscope and special stains. Boyd believes that the cholesterol in the mucosa is derived from the bile. Other observers claim that cholesterol is excreted by the mucosa of the gall bladder but the weight of evidence seems to favor the ideas of Boyd.

The gall bladder of this type is known as the now familiar "lipoid" or "strawberry gall bladder" and is not necessarily accompanied either by gall stones or infection. It does, however, cause clinical symptoms which in many cases do not include the severe colicky pain in the right upper quadrant of the abdomen which has become so associated with biliary disease.

*Symptoms.* The symptoms of this type of gall bladder disease are rather more symptoms due to disturbance of liver physiology than symptoms due to disturbance of the gall bladder itself. It is, in a way, unfortunate that the old terms, biliousness and dyspepsia—in common use twenty-five or thirty years ago have almost disappeared from the medical vocabulary, for in their intent they expressed the syndrome that today is recognized as that of bio-chemical disturbance of the gall bladder. The patient complains of a dull heavy feeling in the epigastrium and states that when eating he fills up quickly. There is more or less flatulence coming on a few hours after meals and lasting for an hour or so which is accompanied by a feeling of distension. This is

increased by certain foods, usually those heavy in carbohydrate or fat and sometimes a raw apple, cabbage or tomatoes will make the condition much more marked. Constipation is the rule.

Routine physical examination elicits little change from the normal. The complexion may be a bit sallow and the outer edge of the sclera may show a slight yellowish tinge. There may or may not be perceptible tenderness over the gall bladder area and over the descending colon and sigmoid.

The diagnosis, therefore, depends upon other than routine physical examination. A sign that has proved of great value to me is the presence of a band of hyperesthesia on the right of the vertebral column extending over one or two intercostal spaces, usually the eighth and ninth or ninth and tenth beginning in the median line of the back and extending forward almost to the midline. It is due to the transmission of hyper-sensory impulses through the afferent sympathetics to the spinal cord which cause the referred hyperesthesia of the sensory nerves of the skin corresponding to the area innervated by afferent somatic nerves belonging to the same segment of the cord. The sign is elicited by scratching the back with a pin lightly, beginning above and passing downward until the patient notes the hyperesthesia. The same procedure is carried out from below upward and the lower limit of the band determined in this way. In my experience this sign has been present in nearly every case of gall bladder disease and I hesitate to make a diagnosis of this condition if it is absent.

The disturbance of skin sensations in visceral disease was described by Head<sup>7</sup> in 1893. Head stated that in biliary disease the maximum hyperesthesia to pin pressure and heat was over the eighth dorsal vertebra posteriorly and on the left side as well as the right. Autopsy, however, demonstrated that in his case there were pericholecystic lesions affecting the stomach and duodenum. Stern<sup>8</sup> calls attention to Boas' pressure point situated to the right of the tenth to twelfth thoracic spine as a diagnostic point in gall bladder disease and calls attention to the hyperesthesia of the Head zone over the distribution of the eighth and ninth thoracic nerves in front over the gall bladder region and also speaks of inactive cholecystopathy being diagnosed as

lumbago because of painful hyperesthesia over the eighth and ninth intercostal spaces posteriorly. He also states that the Head zone may be transposed to a point over the spleen but does not state whether in these cases pathological lesions were found in or around stomach, duodenum, or pancreas. Peterson<sup>9</sup> discusses the value of Head's zones as a diagnostic aid. He states that in chronic cholecystitis or cholelithiasis the hyperesthesia is absent but is present in 40 per cent. of acute cases. He locates the zone, however, over the anterior ends of the nerves under the rib margin and does not discuss the presence of hyperesthesia posteriorly. I believe the most important area in which to determine hyperesthesia extends from the midline posteriorly forward on the right side of the back to the posterior axillary line and I place more confidence in this as a differential diagnostic point in cases of early disease of the gall bladder than in either the anterior zone of hyperesthesia or the Boas pressure point. If a zone of hyperesthesia can be demonstrated on the left side as well, either pericholecystic disease involving stomach, duodenum or pancreas or intrinsic disease of these viscera should be suspected.

Laboratory findings in cases of biochemical disturbance of the gall bladder are of little value. The percentage of hydrochloric acid in the stomach varies in both directions from normal or may be unchanged. Pratt<sup>10</sup> examined a series of about 40 cases of gall bladder disease in the University of Nebraska Hospital to determine the percentage of free hydrochloric acid present in the stomach contents. In 55 per cent. of the cases the acid was normal or slightly increased, in 45 per cent. it was diminished and in three of these latter it was absent. These results coincide with the observations of other investigators and the only definite point determined by Pratt was that the more serious cases showed a marked diminution or absence of free hydrochloric acid. There is no definite change in the blood count. As a rule in these early cases there is no retention of bile causing an increase of bile pigment in the blood serum and consequently the van den Bergh tests are of questionable value. The estimation of the amount of cholesterol in the blood may be significant and an index of two grams or more per liter of blood established by the colorimetric method of Bloor<sup>11</sup> is said to show a



tendency toward gall stone formation. Whipple<sup>12</sup> reports that in a series of some 40 proved gall stone cases about 40 per cent showed a high cholesterol index. He also states that the test shows a high cholesterol index in many other conditions many of which are associated with gall bladder disease.

X-ray examination of the biliary tract is of value. In 1924 Graham and Cole<sup>13</sup> demonstrated that phenolphthalein containing either iodine or bromine injected intravenously into animals or man was excreted in the bile in sufficient concentration to cast a shadow on a film when exposed to the x-ray. Since the original contribution the technique has been greatly improved and cholecystography is now a routine method of examination in suspected gall bladder cases. By its use the filling and also emptying time of the gall bladder can be estimated with fair exactness and thus its normality or abnormality determined. In biochemical disturbance of the gall bladder there is no mechanical obstacle to the entrance of bile into the gall bladder through the cystic duct but frequently due to the alterations in the wall of the gall bladder the emptying time is delayed and bile is retained in the gall bladder longer than the usual two-hour interval following a fat meal. As this type of gall bladder disease is not accompanied by pericholecystitis there are no irregularities in the contour of the gall bladder. While discussing the Graham Cole test I offer the opinion that films should be taken stereoscopically as other shadows may simulate the shadows of gall stones and the differentiation may be made easily by study of stereoscopic films. Recently a patient presented herself in whom the flat film of the gall bladder showed a shadow which looked like that of a stone in the cystic or common duct. When looked at stereoscopically it was easily seen that the shadow was on a plane posterior to the biliary structures, apparently on the posterior wall of the body, and re-examination of the patient revealed a small pedunculated pigmented fibroma of the back the significance of which had escaped notice on physical examination. X-ray of the colon frequently demonstrates the descending colon and upper sigmoid constricted with poorly marked sacculations, an appearance characteristic of so-called spastic colon, which commonly accompanies disease of the gall bladder, but

which does not show the findings of mucous colitis.

The diagnosis in biochemical gall bladder must consequently be made from an evaluation of a complete and careful history and the physical signs that may be elicited together with the x-ray findings. Other forms of disease which might give similar symptoms such as ulcer of the stomach, carcinoma of the stomach, cirrhosis of the liver, chronic appendicitis and digestive symptoms due to pelvic disease, must be ruled out. If the diagnosis can be fairly established in this way the operation of cholecystectomy followed by a proper dietetic regime is indicated. Non-operative measures, such as biliary drainage, drugs and dietary management have not given sufficiently good results to warrant the belief that the pathological process can be checked by such means. As a rule, the condition of simple biochemical abnormality progresses to the stages of gall stone formation or infection and when these stages are reached operation is not only much more difficult and dangerous but also the recovery is apt to be more tedious and less complete. After operation in cases in which the pathological lesion has not reached beyond the stage of the lipoid or strawberry gall bladder the assurance of practically a complete recovery to normal can be offered to the patient.

At operation at first glance the gall bladder may appear normal. There are no adhesions and the fundus of the organ appears bluish in color and does not seem thickened. Careful search will, however, show abnormalities characteristic of the condition. Fine white streaks may be found on the anterior surface of the liver at the point where the fissure for the gall bladder meets the anterior surface. These radiate from the point of attachment of the fundus of the gall bladder in a fan like manner. In very early cases they are difficult to find, as they are evidences of hepatic disturbance due to the gall bladder lesion and consequently are not large, but if carefully searched for they will usually be seen. Passing down from the fundus toward the neck of the gall bladder the wall loses its translucency and a deposit of yellowish fat is seen beneath the peritoneum. The smaller branches of the cystic artery are quite prominent. The wall of the gall bladder in the region of the cystic duct is thickened and the lymphatic

gland lying alongside the cystic duct between the layers of the gastrohepatic omentum is enlarged. In these cases I believe that the appendix, if present, as well as the gall bladder, should be removed. -

BIBLIOGRAPHY

1. Graham, Cole, Copher and Moore: Diseases of the Gall Bladder and Bile Duct. Lea & Febiger, Philadelphia, 1928.

2. Mentzner, S. H.: Clinical and Pathological Study of Cholecystitis and Cholelithiasis. Surg. Gyn. & Obst., 1926, 42, 782.

3. Aschoff, L.: Lectures on Pathology. Paul B. Hoeber, New York, 1924.

4. Aschoff, L.: Formation of Concretions. Tr. Internat. Path. Conference (1911), 1:327, 1912.

5. Rous, P., and McMaster, P. D.: Concentrating Activity of Gall Bladder. J. Exper. Med. 34:47, 1921.

6. Boyd, W.: Studies in Gall Bladder Pathology. Brit. Jour. Surg., 10:337, 1923.

7. Head, Henry: On Disturbances of Sensation with Especial Reference to the Pain of Visceral Disease. Brain, 1893, p. 1.

8. Stern, Max: Ueber Transposition der Headschen Zone und des B-asschen Druckpntes hei Cholezystopathien Deutsche Med. Woch. 57:9 Feb. 27, 1931.

9. Peterson, Lennart: Head's Zonen als diagnostisches Hilfsmittel. Zentralblatt für Chirurgie. April 4, 1931, p. 839.

10. Pratt, Geo. P.: Personal Communication.

11. Bloor, W. R.: The Determination of Cholesterol in the Blood. J. Biol. Chem., 24:227, 1916.

12. Whipple, A. O.: Surgery of the Biliary Tract. Nelson's Surgery, Vol. V. Thos. Nelson & Sons, New York, 1928.

13. Graham, Evarts A., and Cole, W. H.: Roentgenological Examinations of the Gall Bladder, etc. J. A. M. A., 1924, 82-613.

TABLE 1. DEATH RATES PER 100,000 POPULATION IN THE DEATH REGISTRATION AREA IN CONTINENTAL UNITED STATES, COMPILED BY THE BUREAU OF THE CENSUS

Year	Diabetes Mellitus	Typhoid and Paratyphoid	Alcoholism	Cirrhosis of the Liver
1918.....	15.9	12.6	2.7	9.6
1919.....	14.9	9.2	1.6	7.9
1920.....	16.0	7.8	1.0	7.1
1921.....	16.8	9.0	1.8	7.4
1922.....	18.3	7.4	2.6	7.4
1923.....	17.7	6.8	3.2	7.2
1924.....	16.4	6.7	3.2	7.3
1925.....	16.9	8.0	3.6	7.3
1926.....	18.0	6.5	3.9	7.2
1927.....	17.5	5.5	4.0	7.5
1928.....	19.0	4.9	4.0	7.6
1929.....	18.8	4.2	3.7	7.2

TABLE 2. SUGAR SUPPLY AVAILABLE FOR CONSUMPTION IN CONTINENTAL UNITED STATES 1917-18 TO 1930-31.\* IN TERMS OF RAW SUGAR

Year Beginning July	Available for Consumption	
	Total Short Tons	Per Capita Pounds
1917-18.....	4,037,377	78.5
1918-19.....	4,371,013	83.8
1919-20.....	4,816,862	91.1
1920-21.....	5,242,852	97.6
1921-22.....	5,589,624	102.4
1922-23.....	5,899,849	106.5
1923-24.....	5,646,223	100.2

1924-25.....	6,540,695	114.2
1925-26.....	6,647,627	114.4
1926-27.....	6,518,486	110.6
1927-28.....	6,568,090	110.1
1928-29.....	7,192,282	119.0
1929-30.....	6,364,548	103.3
1930-31.....	6,391,976	103.0

\*Figures from 1931 Year Book of the Department of Agriculture, U. S. A. Corrected April, 1932.

TABLE 3. DEATH RATES FROM DIABETES THROUGHOUT THE WORLD

(Compiled from published data by John R. Gore, vice-president and actuary, Prudential Life Insurance Company of America. Deaths per 100,000 population.)

Country—	Diabetes	
	1901-1905	1921-1925
Austria .....	6	12
Chile .....	3	6
England, Wales .....	9	11
Hawaii .....	3	8
Ireland .....	7	7
Japan .....	3	2
Netherlands .....	8	18
New Zealand .....	9	13
Ontario .....	9	12
Porto Rico .....	2	2
Scotland .....	7	10
Spain .....	4	7
Straits Settlements .....	4	3
Sweden .....	11	13
Switzerland .....	6	9
Uruguay .....	3	6
United States .....	2	17

BLOOD TRANSFUSION

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Blood transfusion is a most valuable therapeutic procedure; dangerous, when misused; most useful, most efficacious, often life-saving when properly employed. It is deserving of increased popularity. The accidents and fatalities that have occurred were due to faulty technique or to improper cross-checking of bloods. Its mechanical difficulties have been minimized and can be mastered with little effort and little expenditure of time. General practitioners should become increasingly familiar with its practical usefulness, indications, limitations, dangers and technique.

The fear of blood-transfusions, existent in the minds of many physicians, is based not on actual experience but merely on certain preconceived impressions. Blood-transfusion must be timely: one should not wait for the patient to be moribund before resorting to it. The effect of blood transfusions is impressive; the pulse is improved, the face loses its ashen color, air hun-



ger and ominous yawning disappear, etc. The life of the transfused corpuscles is said to extend for at least twenty days. It is reasonable to assume that the beneficial results of transfusion are due in part to the functioning of the transfused corpuscles.

The physician should familiarize himself with the very interesting biological problem of blood-grouping. The blood of human beings has serological peculiarities which make certain bloods incompatible. The four main human blood groups (sub-groups have been reported) have sharply defined and readily determined characters which are fixed, inherent and inherited

transfusion. The donor's blood must not be toxic to the recipient's blood nor vice versa. Even the subcutaneous injection of incompatible blood may provoke serious local and general disturbances.

Cross-checking of the donor's and recipient's blood is easy of performance, rapid of execution and reliable in detecting compatibility and incompatibility; it has shorn blood-transfusion of almost all its difficulties and dangers, and has placed the procedure in the domain of the general practitioner. The technique of blood cross-checking has been simplified to such an extent that transfusion can be performed not only in small hospitals but also in homes.

Immediately before transfusing, the medical attendant will cross-check the donor's red blood-cells against the recipient's blood serum and the recipient's red blood-cells against the donor's serum. Cross-checking is all-important, as experience has shown that blood-grouping alone does not offer an absolute guarantee of blood compatibility in any actual transfusion. In emergencies, we do not type the bloods, we merely do a direct compatibility test between the serum of the recipient and the cells of the donor and vice versa. Universal donor and universal recipient are only relative terms. Though two persons may be the same group type, the serum of either may agglutinate the cells of the other. The best authorities have not noted a single instance of auto-agglutination.

We always use non-modified, non-altered, non-diluted unchanged whole blood; and thereby, place immediately in the vein of the recipient all the constituents of value to the individual. Blood is a solution of many substances; it transports heat from one part of the body to another and contains water-soluble foodstuffs for the cells and water-soluble products of organ activity. The formed elements floating in the blood, the red blood-cells, the white blood-cells and the blood-platelets do not reproduce themselves within the blood-stream but pass into it from the organs which form them. Whole-blood is always superior to any artificially prepared colloidal mixture. It is five times more viscid than water. Normal salt and analogous sera cannot replace blood.

Attempts to retard coagulation by the addition of drugs impair the value of the blood from the



Fig. 1. Bécart autoparessing, aspirating and propelling syringe.

properties of the individual. Disease does not change an individual's blood-group. The testing of a patient's blood-group need be done but once, for the group characteristics do not change. These groups and sub-groups exhibit various compatibilities and incompatibilities. For a blood-transfusion to be free from danger to the recipient (to the donor, the dangers are negligible), it is absolutely essential that the serum of the recipient should neither hemolyze nor agglutinate the red blood cells of the donor. The regeneration of the blood takes place at the rate of 100 to 150 c.c. per week. The great danger of the procedure, incompatibility of the donor's and the recipient's blood, is avoided by careful direct cross-matching of the donor's and recipient's bloods immediately before each and every

biologic and immunologic point of view. Many clinicians claim that anti-coagulant drugs reduce the phagocytic and opsonic powers of the blood and increase the fragility of the erythrocytes. Sodium citrate leads to destruction of blood-platelets. The whole-blood method has the additional advantage of being followed by fewer post-transfusion reactions. The latter occur in about 35% of citrated blood-transfusions, and in only about 15% or less of unchanged blood transfusions.

Confronted by a set indication the first thing to do is to select a suitable donor. The selecting of a donor from the same family has no advantages except those of economy and sentiment. A suitable donor is the first and foremost requisite for a successful transfusion. By a suitable donor, we mean one who is not substandard in weight, who is in good health, who is free from any communicable disease and whose blood will neither agglutinate, nor hemolyze the recipient's blood nor be agglutinated nor hemolyzed by it. Male donors are to be preferred as usually their subcutaneous veins are more visible, are easier of access and their blood-volume is larger. We eliminate constipated individuals. Owing to the fact that toxic products of digestion in the donor's blood may cause a general reaction in the recipient, we prefer a fasting donor (about 12 hours). The selecting of a healthy donor assures the recipient blood of superior quality and protects the donor against a loss that he can not safely sustain. Be especially careful to exclude malaria, tuberculosis and syphilis, past or present. Micro-parasites may be transferred from one individual to another; malaria, however, is inoculated intravenously with difficulty. To exclude syphilis, the Kahn test is serviceable; it is sensitive, reliable and does not consume more than half an hour. No blood donor should be accepted whose hemoglobin is found to be less than 85% of normal.

The amount of blood to be transferred varies with the age and physical condition of the recipient. It would not be rational to give the same amount of blood to a man 6 feet in height and weighing 200 pounds as to one five feet in height weighing 100 pounds. I never transfuse more than 500 cu. cm. at one sitting.

Direct cross-matching is performed by sus-

pending the donor's red-blood cells in the recipient's serum and vice versa. Proceed as follows: 1. Assemble the following: 4 small test-tubes, two glass-slides, a few cover-glasses, two glass-pipettes, 1% solution of sodium citrate in normal saline solution and a microscope. 2. Withdraw by means of a needle puncture, from the donor's cleansed ear-lobe, cleansed finger or any other eligible site, a half-cubic-centimeter of blood. This is collected in a test-tube containing 5 cm. of 1% solution of sodium citrate in normal saline solution. 3. Collect also one-half cubic centimeter of the donor's blood in an empty test-tube.

4. Collect similarly like amounts of the recipient's blood. There are now four test-tubes carefully numbered: two of these test-tubes contain pure blood and two contain a suspension of red cells in a one-per cent. solution of sodium citrate in normal salt solution.

5. Place two drops of the donor's serum and two drops of the recipient's red-blood cells, close to one end of a glass slide, stir gently and place thereon a cover-glass. Close to the other end of the same glass slide, place two drops of the recipient's serum and two drops of donor's red-blood cell suspension, stir. Place a cover-glass on top.

6. Examine these two cover-glass preparations under the microscope with low and high power; observe for fifteen minutes. If at the end of fifteen minutes, agglutination be absent from both glass slide preparations, if the blood corpuscles do not present a granular appearance, the bloods are compatible. Agglutination means incompatibility, it means possible hemolysis and hemolysis means dangerous and perhaps fatal reaction. Agglutination calls for the rejection of that particular donor in that particular case.

*Indications:* Blood transfusion is indicated:

1. After acute profuse hemorrhages medical, obstetrical, surgical or traumatic. These hemorrhages may be post-abortion, post-partum, may occur in the course of gastric, duodenal and intestinal ulcers, with a rupture of an ectopic fetal sac, in the course of placenta previa, in wounds of large vessels, etc. Death following hemorrhage is usually due to a blood-volume deficit and not to a hemoglobin deficit. Large hemorrhages cause a fall of arterial blood-pressure; when after a hemorrhage, the maximal and



minimal blood-pressure fall progressively, it is agreed that blood-transfusion is indicated. Though transfusion does not replace the total amount of blood lost, it aids to restore blood-volume by adding fluid-bulk to the blood-stream, and by increasing the number of circulating red blood-cells it lessens the deficient oxygen carrying power of the patient's blood. It combats whatever degree of shock is present and stimulates hematopoiesis. Several successive transfusions may be necessary to restore the hemoglobin and red blood-cells to an approximately normal level.

2. To arrest hemorrhage that cannot be controlled by other measures. The value of whole, unaltered, unmodified, undiluted blood as a hemostatic agent is established. Transfusion has given striking results in hemorrhages of the new-born, in purpura hemorrhagica. In hemophilia, blood transfusion has saved lives. In hemorrhagic conditions, it is well to supplement blood-transfusions by the administration of calcium, either intravenously, intramuscularly or orally. Hemorrhagic conditions arise partly from the diminution of the calcium available for the purpose of coagulation.

3. In shock associated with, or consecutive to, hemorrhage. In complete vaso-motor collapse, the vascular bed suddenly becomes larger than the blood volume. Transfusion increases the oxygen carriers of the blood and the venous return to the heart.

4. As a preoperative measure, to limit hemorrhage in jaundiced patients. In chronic obstructive jaundice, blood transfusion increases the blood-pressure, decreases the toxicity and reduces the coagulation time.

5. As a pre- and post-operative measure to prepare substandard or surgically handicapped patients, such as suffer from malnutrition, chronic infection, secondary anemia, etc.

6. In the post-operative treatment of acute mastoiditis, sinus thrombosis, otitic septicaemia, etc.

7. In uterine cancer, as a preparatory or supporting measure in radium or roentgen-ray therapy.

8. In certain medical conditions; to supply blood-platelets, as in purpura; normal serum, as in nephroses, and in some allergic conditions granular cells, as in agranulocytosis.

9. In secondary anemias: The added blood seemingly acts beneficially by leading to increased activity of the blood-forming organs and by modifying the hemolytic problems that cause the anemia.

10. In sepsis: The value of blood transfusions in septic infections has not been definitely determined. Some clinicians maintain that the transfused blood exerts a direct bactericidal action on the infecting organism, that it aids to overcome the secondary anemia and to build up the patient's general condition. Patients actually dying from sepsis are not improved by blood transfusion owing to the inability of the greatly damaged excretory organs to properly care for the large amount of suddenly introduced foreign serum.

*Technique:* Many valuable methods and ingenious instruments have been devised for blood transfusions. The method we recommend has the merit of simplicity, safety, efficiency and rapid collection and propelling of the blood. We use an aspirating and propelling syringe, Bécart provided with a piston that automatically coats the interior surface of the syringe with a special wax preparation. The passage of blood over a rough surface hastens coagulation, therefore, it is necessary that the inner surface of the syringe, nozzle, obturators, needle and plunger be well paraffined. In blood-transfusions, the greatest mechanical difficulty to overcome is blood clotting. The compatibility of the donor's blood and recipient's blood having been determined, having been verified, donor and patient are placed on adjacent tables. Then the operator tests his instruments, all of which have previously been sterilized by heat, dry or moist. He sees that the needles are not plugged, that the syringe does not leak, that the internal surface of the syringe and plunger of the piston are well-coated, well lined with paraffin. The syringe used has an eccentric nozzle; this allows the operator to rest the syringe on the surface of the arm or forearm during use. The paraffin coating must be done with care, as the donor's blood must not, in being conveyed to the recipient, come in contact with the air nor with any surface that is not lined with paraffin. Any method that makes use of rubber tubing is open to criticism for that reason alone. The needles

that we use fit directly into the cannulated end of the nozzle.

Any visible, easily accessible, subcutaneous vein may be used to withdraw or to inject blood. Almost always, we select one of the veins on the anterior surface of the bend of the elbow usually the median basilic or the median cephalic. Place a tourniquet around the donor's and one around the receptor's arm; the purpose of this is to distend the superficial veins; see that the arterial circulation is not embarrassed. The tourniquet is retained on the donor's arm until the necessary amount of blood has been withdrawn. It is loosened from the recipient's arm immediately after the successful introduction of the needle into the vein. The recipient and donor are asked to contract the muscles of the forearm so as to distend the superficial veins. The bend of the donor's elbow having been surgically prepared, the selected vein is exposed and freed from surrounding tissues by a 1 cm. incision perpendicular to the course of the vessel. Pass a double catgut thread beneath the vein and introduce the needle of the syringe into the donor's vein; the needle-point being directed to the periphery. The needle is fixed to the vein by one of the catgut threads mentioned above. The other thread can serve to ligate the vein if necessary at the conclusion of the transfusion. The same procedure is employed in the recipient with this major and important difference, that in the recipient, the needle is introduced with its point directed in the direction of the venous current. Though many clinicians enter the selected veins through the uncut skin, the introduction of the needles is far more easily performed if the selected vein of the donor and that of the recipient be exposed by a small incision to direct vision. This calls for a small incision not over one-half inch in length and perpendicular to the veins selected. In the recipient, because of the very low blood-pressure and small collapsed veins, it is almost always necessary to expose the vein so as to introduce the needle under direct vision. When during a transfusion, the recipient experiences some alarming symptom, such as marked dyspnea, cervical constriction, precordial distress, etc., stop the procedure at once. Speed is desirable in a blood-transfusion, in fact, it is really the key-note of success. Delay favors clotting,

the great stumbling-block of whole blood injections.

During and for some time (for several hours) after the transfusion, the donor (if possible) and the recipient always should be kept in bed, in the recumbent position.

## THE CARE OF THE INDIGENT POOR— SICK AND WELL\*

CLEAVES BENNETT, M. D.  
CHAMPAIGN, ILL.

In March, 1930, Dr. Harry M. Hall, one time President of the West Virginia State Medical Society, wrote the following editorial in their medical bulletin:

### WHO IS RESPONSIBLE FOR THE POOR?

"Who is responsible for the poor? Certainly not the doctors. The medical profession had nothing to do with their poverty. It is the economics and the chaotic living conditions of the outside world. They cannot obtain a livelihood, so are not fed, sheltered or clothed. They, therefore, through lack of resistance, fall prey to disease. No chain store gave them food. No mail order house gave them clothing. No statesman worked out a solution for their maintenance with self-respect. No politician gave their plight a real thought. Mergers, combines and chain stores threw some of them out of employment. It was too late to get anything else. What will be done with them? Shoulder them on a hospital and let the doctors do what they can. But how? Free, of course. Up go hospital rates. Then critics dispose of us in sarcastic terms about the high cost of medical care. Had we collected our accounts and had no promiscuous free service no one would have ever heard of the high cost of medical care. Our philanthropy was really the cause of our undoing."

Think it over. The thoughts just read would apply, in one way or another, to any company of human beings from the days of Noah to Julius Rosenwald and Company. In proportion to our professional and economic progress, how much better are we doing today than did our predecessors of centuries ago? Think that over, too. And remember that I'm supposed to talk twenty minutes on a subject that has been argued over for 2,000 years—"the poor ye have always with

\*Read at Secretaries Conference, Springfield, May 17, 1932.



you," so don't expect either a complete discussion or a complete solution.

There are two classes of "indigent poor." One, the professional pauper who believes the rest of the world owes him—or her—a living and whose two ambitions are reproduction and perfect attendance at the supervisor's office. For this class I have as little use or time as possible—I cannot evade it entirely. What we do for it is not charity—it is necessary *scavenger work*. Anything we can do to lessen the quantity and quality of this scavenger work by the sterilization of degenerates, for example, and compulsory preventive medicine, it is our duty to do, both to help them and protect our own. The other class, composed of the real "worthy poor," the people who through no fault of their own are absolutely unable to have the bare necessities of life, is deserving of all we can decently do for them, and we do it gladly. There is not a practicing physician in this room who has not patients of that kind that he cares for and loves, no matter if he never receives a cent. The care of this class is a psychological problem, as well, for they are sensitive, honest and proud. To help them, practically, is real charity—and yet they get, ordinarily, much less help than the scum. Another of our problems.

My experience in the care of the poor is based upon 37 years' practice in Central Illinois, at no time in a community of over 35,000 people. What observations I may make, therefore, are principally applicable to rural communities, not to large cities.

"Pauper work" may be done in different ways, according to the needs of the individual locality. It may be as well to speak first of preventive medicine. This kind of pauper work is no different from any other preventive work, except that it is much harder to accomplish. The pauper of my first class is apt to be defiant of all rules—and the worst of it is that he expects, and too often gets, supportive sympathy from the lay sob-sister and sob-brother in his community, and rails about his rights as an American citizen to anyone who will listen. And if one of his listeners happens to be running for office, so much the worse for the public. You and I know that certain degenerates ought to be sterilized, for the sake of the community which supports them. Yet the State of Illinois hasn't sand enough to

put such a law on its books. You and I know that these children should be vaccinated for smallpox and diphtheria—yet the State of Illinois hasn't sand enough to pass a compulsory vaccination law. Because of this cowardice our State Government pays out millions of dollars a year which it shouldn't pay out, and it pays 100 cents on the dollar for everything it gets except what it gets from you and me. It pays you and me from nothing at all up to 50 per cent.—and taxes you and me *full* schedule to help pay for support of these same paupers. I make no apology for my oft-repeated statement that Illinois' method of handling its indigent poor is a joke—and the medical profession gets the worst of it. Draw your own conclusions, and look into the future and begin to think what you're going to do.

About 25 years ago we had a sudden outbreak of smallpox in the "slum district" of the town in which I lived. Many of you remember what that meant—farmers wouldn't come in to trade, townspeople wouldn't go out, and general hysterics everywhere. After a week or two of milling around one of the physicians there said he'd stop that epidemic if the city and county officials would pay him \$25 a day for one month and back him up in whatever he ordered. They howled about the \$25 a day for a month, whereupon he said he wasn't interested. So they agreed; he had had experience enough with county officials to insist on a written contract signed by them individually. Then he put those cases all into three houses in one block, and vaccinated—with the help of the rest of us—*everybody*. A few children, whose parents would not let them be vaccinated, were sent home from school, in spite of threats of lawsuits which didn't materialize. When some of the patients were convalescing they begin to break quarantine, thinking it was funny to do so. The city officials told them to stay in, but they wouldn't do it and the city "doubted its legal authority." They had a guard down there, but he didn't know his legal rights as a guard. Whereupon the doctor put one of his own gang down there as a guard with a shot gun and a box of shells, and promised the first fellow who went off the reservation a load of quail shot. That ended it. Smallpox was all gone in a month, and the doctor got his \$750—and that \$750 was the best

investment that town made that year. Are we doing any better today?

As I see it over the State, there are three pretty well defined plans for handling the pauper work of a township, or county, today.

First, the old plan where one man is given the work, for a fixed fee, usually on the basis of a competitive bid, at a ridiculously low figure. This work is well done or badly neglected according to the conscience of the man who is doing it. In the occasional township where there is only one doctor it is usually well done, because that doctor is paid a decent fee by the supervisor or he is busy doing something else—and no one can do the doctor's work but the doctor. Money talks—you can get better brick laying or corn plowing for decent wages than for half wages.

In another community of which I know, some of the members of the County Medical Society, about one-half of the total number, have formed what they call the County Academy of Medicine to do the pauper work. This County has a small hospital as part of its county farm equipment. Cases requiring hospitalization are sent there from the different townships and the latter pay proportionately. (Here, incidentally, is a fertile field for financial disagreements.) Five or six men compose a team, which works for two months, attending to all cases in the hospital, and the Academy of Medicine receives \$1,800 a year, the same amount that was paid to the individual under the old single bid system. These men do not care for any patients except in the hospital, so the non-hospital cases must be attended in their homes by some township physician just the same. They are doing excellent work, no doubt of that. But they are doing about \$10,000 worth of work a year for \$1,800—and that is a mistake. They are also, perhaps unconsciously, getting plenty of patients among these who could pay something, and in that way they are encouraging medical beggars—that's another mistake, which could be largely rectified, however, by a real social worker who would decide whether or not John Jones was a pauper patient. It might put too many of the interesting cases into a comparatively few hands in counties where it is difficult for some men to attend during their turn—and I doubt if that will promote universal peace and goodwill for-

ever. But for all that, there are many good points about this plan, especially in selected cases; and no one plan will fit all cases.

Two other counties of which I know—there may be many more, but I know of these—have a fee bill for all pauper work, these fees being approximately one-third of the ordinary, minimum regular fees. The patient may have any doctor that he and his supervisor may or can get. In one of these counties the fees are paid to each physician as he earns them; in the other, by their own agreement, the fees are paid to the treasurer of the County Society. The latter sees that all the members' local and State (and I think A. M. A.) dues are paid, and they have, as a society, money in the bank to do with as they please. This latter society, with the County Board of Supervisors, employ a social worker who, I am told, does not hesitate to say who "rates" county assistance and who does not. She is considered a good investment by both her employers, and ought to be. The right person in that place is, in my mind, very essential to the success of any of these plans.

Personally, I think the plan of the fractional fee basis will work the best of all in the long run—and this run is not going to be finished till Gabriel blows his horn—don't forget that. Whatever we do now will be a help or a hindrance to our sons and grandsons who follow in our footsteps. Choose whatever plan seems best to suit your individual community and carry it out—but *make that community pay, reasonably, for what you do*. Our profession has to live, pay its bills, pay its taxes, bear its share of everything—and we're glad to do it. But when the one thing we have to sell, to get money to do our share, is our services, why on earth should we *give* hours of our time for *nothing* to families for whom our civic authorities *pay* 100 cents on the dollar for everything from shoes to cigarettes? The one thing that I insist on, and always shall insist, is that medical services ought to be *paid for*, just the same as groceries and clothing; and that when a Board of Supervisors sits down to make up its yearly budget they put in a decent amount for those medical services. If it won't balance the first time that way, let them keep at it till it does balance. If anyone thinks that's unreasonable, just let *all* the doctors in any



county take a two weeks' vacation at the same time.

I have always done my full share of charity work and I always will. But I intend to administer my own charity—in my own way; and in some ways, among what we call the “worthy poor,” no one will know anything about it. But I see no reason why the medical profession is obligated to *give* its services to the civic organization of a modern community when the members of that same profession are individually paying taxes of all kinds to support that same organization in 20th Century style. Think it over.

#### DISCUSSION

Dr. Elizabeth R. Miner, Macomb: I see no reason why the physician should only receive one-third of his price for the work he does, when the County Supervisor has to pay the merchants full price for all they furnish the county. We save lives. Is our work not as important as theirs?

#### TUBO-VALVULAR GASTROSTOMY\*

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#### CHICAGO

The indications for gastrostomy are numerous. Mechanical interference with deglutition from any cause is an indication for its performance. This is particularly manifest in malignancies of the oropharynx or esophagus, in strictures and in patients who carry on a pitiable existence by reason of gradual starvation occasioned by tuberculous involvement of the larynx which makes their life burdensome. Gastrostomy is the only form of relief which is offered to this class of patients for the dysphagia and other distress.

If we consider that the literature discloses more than thirty operative procedures for the performance of gastrostomy one must conclude that most surgeons are not entirely satisfied with the methods in vogue.

The two great pitfalls in gastrostomy as performed today are:

First, it is difficult to render the stomach water-tight and consequently egress of gastric contents often causes excoriations and cutaneous macerations which render the patient most uncomfortable.

Second, the difficulties commonly encountered in such operations as the Witzel, Stamm, Kader, etc., are well known. The most important one of these is that the channel through which the catheter passes is lined with serosa and, as is well known, serous surfaces tend to prompt union. Therefore, difficulty is experienced in keeping the passage patent.

The history of gastrostomy dates back to 1837, when Egelberg, a Norwegian military surgeon, advised its performance for cases of esophageal stricture and while Egelberg himself did not perform the operation, Bassow, in 1842, and Blondlot, in 1843, performed it on dogs.

Sedillot was the first to perform the operation on a human being, in 1849 and in 1853. From that time on the operation was extended and modified so that today we find ourselves with a number of procedures, all of which have the serious drawbacks to which I have alluded.

Depage, a French surgeon, in order to obviate the agglutination of the serous surfaces encountered in the Witzel and other procedures, formed a tube from the anterior wall of the stomach. This tube, being lined with mucous membrane, did not close and thus a distinct step in the right direction was taken.

But the other drawback, namely the leakage from the tube (in other words, the rendering of the stomach water-tight), was still to be overcome. This was made possible by Spivack's method which consists of forming a valve from the entire thickness of the stomach which automatically closes the opening at the base of the tube, thus rendering the stomach water-tight. (Fig. 1 C.)

These important obstacles, having been overcome, it seemed necessary to safeguard further against every possible source of failure, for Kraske and Anders saw peritonitis develop from leakage of gastric juice through the puncture holes made by the needle in classical gastrostomy.

Confronted, as every surgeon is, with the imperative demand for gastrostomy, I recently have studied the operation carefully. It has been my lot to experience a leakage from the point of junction between the tube made from the anterior wall of the stomach at the point where it joins the stomach wall.

Keeping in mind the tremendous advances made by tube formation (Fig. 1 A.) and more particularly by the valvular method of Spivack,

\*From the Surgical Service, Cook County Hospital, Chicago.

it remained to reinforce the weakest point of the operative area, namely, where the tube joins the stomach. For this R. W. McNealy makes use of the omentum.

I felt that making use of the ligamentum falciforme hepatis as a protective layer over the suture line might answer the purpose. This I have carried out. (Fig. 1 B.) This ligament

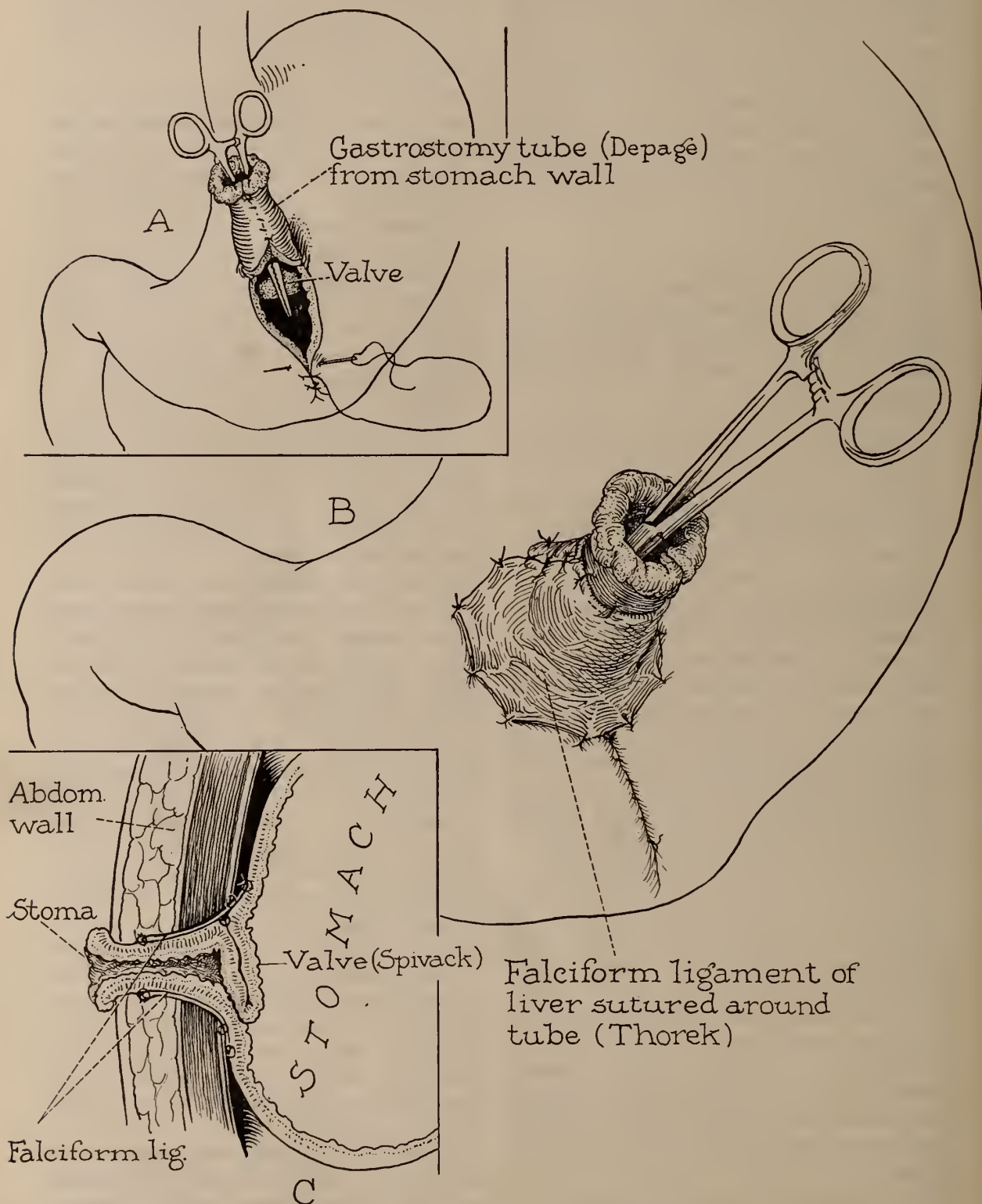


Fig. 1. Evolution of tubo-valvular gastrostomy.



being composed of two layers of peritoneum closely united, seemed to me ideal for the formation of a "protective collar" around the tube and suture line. The thus gained serous surfaces of the collar promptly agglutinate with the parietal peritoneum of the anterior abdominal wall and with the serosa on the anterior wall of the stomach. Additional security from leakage from the base is thus obtained and egress of gastric contents from the tracts made by the needle, to which I have previously alluded, is effectually prevented.

At first glance it might seem unjust to take a ligament of the liver and use it for the purpose of forming the "collar" described, but if we keep in mind that the falciform ligament, in the words of Gray "\* \* \* give no support to the liver," it at once becomes apparent that it might be mustered into valuable service in this connection.

That such agglutination of the serous surfaces of the newly formed "falciform collar" with the anterior abdominal wall and the stomach does take place seems certain.

A patient, aged 73, who suffered from carcinoma of the tonsil with regional metastases into the oropharynx which caused him difficulty in swallowing, was referred to my service at the Cook County Hospital for the performance of gastrostomy. A tubo-valvular gastrostomy with "falciform collar" formation was done. Four days after the operation the patient developed hypostatic pneumonia and died. Necropsy performed by Professor Jaffe, four days after exitus, revealed no leakage.

There was complete agglutination of the "falciform collar" to the surrounding structures (along the suture line of the tube and to the anterior wall of the stomach as well as to the parietal peritoneum). Normal healing of the structures concerned.

The technical details of this procedure require careful consideration and meticulous regard for exactness. For the description of the formation of the tube and valve the reader is referred to an article by Spivack<sup>1</sup> and to Thorek's "Surgical Errors and Safeguards,"<sup>2</sup> pages 239-247.

After the tube and valve have been formed according to the technic described in the contributions referred to above, the "falciform collar" is formed by excising a sufficiently large portion of the ligamentum falciforme hepatis,

which is immediately applied to the suture line of the tube and anterior stomach wall. It is attached in such a manner as to cover as much of the suture line as possible. Particular attention must be paid to covering the most vulnerable point, namely the junction of the base of the tube with the stomach. (Fig. 1 C.)

The suture material used should be very fine catgut, carried on small curved needles. The attachment is accomplished by interrupted sutures.

Where the falciform ligament is large and very mobile as is often the case, particularly in emaciated patients, I have swung it into position and sutured in place to vulnerable points without disconnecting it from its attachments.

The implantation of the tube into the abdominal wall is of utmost importance and is carried out as follows:

1. Unite the parietal peritoneum with the serosa of the stomach posteriorly.
2. Repeat the same procedure anteriorly, picking up in the bite of the needle the serous surface of the "falciform collar."
3. Stitch the fascia of the rectus abdominis muscle to about the middle of the tube posteriorly. Repeat anteriorly.
4. Unite the end of the tube to the skin. This should be done with silk or Pagenstecher linen in such a manner that the everted mucous membrane forms at the completion of the operation a rosette representing the parietal stoma.

### Conclusions

1. The indications for gastrostomy are numerous. It should receive greater application. It is strongly indicated in laryngeal tuberculosis with dysphagia where nutrition suffers.
2. The tubo-valvular method of gastrostomy marks a distinct advance in obviating the two great drawbacks innate to gastrostomy procedures performed hitherto (leakage and obliteration of passage).
3. A method is described by which a collar is formed from the ligamentum falciforme hepatis to further safeguard against the possibility of complications. (Leakage and its attendant evils.)

### BIBLIOGRAPHY

1. Spivack, Julius: *Brunns Beiträge für Klinische Chirurgie*. August, 1929.
2. Thorek, Max: *Surgical Errors and Safeguards*. J. B. Lippincott Co. 1932.

## DISEASES TRANSMISSIBLE FROM ANIMALS TO MAN OF MAJOR PUBLIC HEALTH IMPORTANCE\*

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Self-accusation is one of the most irksome and disagreeable solutions of any problem that a human being may be called upon to solve. Every possible outside cause must be vindicated before a man will lay upon himself the blame for any loss, injury or shortcoming. Always he seeks to shift the responsibility for difficulties to other people or other things. Could evil or mischief have its source in a being created in the image and likeness of God? For a man to admit that he is an ambulatory incubator of diseases borders upon the preposterous.

Better to saddle the blame of sickness upon evil spirits! Better to believe that some witch has let loose the powers that produce fever! Better to believe that miasmatic air, swampy waters and malodorous garbage constitute the source and origin of communicable diseases. This, indeed, has been the history of epidemiological thought and theory.

At last, having exhausted in vain all other means of explanation, man has finally been compelled to recognize and admit that he himself is the dominant factor in producing the ailments which beset his life. Microorganisms are a factor in transmissible diseases but man is the principal incubator or soil upon which they grow. To be able to share this responsibility with lower animals may be the source of some satisfaction to the human ego. At any rate, this is the case in respect to certain diseases.

Fortunately, the general rule is that man does not share his diseases with the lower animals. Likewise, lower animals, as a general rule, do not share their diseases with man. The barriers between transmissible diseases of man and lower animals are broken over frequently enough, however, to make the subject a matter of some importance to public health.

It is possible for more than a score of diseases to be shifted in some degree back and forth between man and the lower animals. This dis-

cussion will be limited to those diseases which appear to have actually or potentially the greatest public health importance in Illinois at the present time. These are tuberculosis, rabies, undulant fever, tularemia and septic sore throat. The latter is closely associated with scarlet fever and, indeed, scarlet fever may very well be included in this list.

A consideration of these diseases will bring out one important relation which is frequently overlooked in public health programs. This is that the control of these diseases, so far as humans are concerned, depends to a considerable degree upon the close and intelligent cooperation of health officers and physicians with the veterinary profession. With a common purpose in view and a clear understanding of the common problems, solution will be made far easier than can otherwise be the case.

*Tuberculosis.* It is difficult to trace a particular case of tuberculosis and pin the origin down unequivocally to a bovine source. Circumstantial evidence has to be depended upon to a large degree. What seems to be highly incriminating evidence against a tuberculous cow was uncovered in Edgar County a few years ago.

Down there a federal veterinarian tested a herd. One cow, known as Black Lady, reacted. She was tagged and branded. The owner refused to believe that this cow was infected. He didn't want to risk the reputation of his herd by keeping her, however. Neither did he want to accept the loss of slaughter. Consequently, he traded Black Lady to his hired man, Kelly, in return for labor.

Kelly had seven children. The cow, he thought, would provide them with milk. The oldest child did not drink milk. The baby still nursed at its mother's breast. The other five drank milk from Black Lady and all five contracted tuberculosis. The other two escaped. The family physician made tests which showed that each of the five children was infected with the bovine type of tuberculosis. Every scrap of evidence indicated that the cow's milk was responsible for tuberculosis in these children.

This experience illustrates especially the teamwork between veterinarians and public health workers which is necessary to prevent such tragedies. Pasteurization is an effective way to prevent milk from carrying tuberculosis but pas-

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teurization is confined largely to city milk supplies. Furthermore, there are about 10,000 dealers in Illinois who handle raw or unpasteurized milk. During the last two years these dealers have cut prices and in that way have increased the volume of their trade. The integrity, skill and industry of veterinarians who are responsible for testing cattle is the only safeguard which stands between the consumers of this raw milk and the possibility of tuberculosis.

The influence of control measures applied to bovine tuberculosis can be measured with considerable accuracy. Bovine tuberculosis in humans is confined very largely to children under five years old. Twenty-five years ago, 6 per cent. of all deaths from tuberculosis in Illinois were among children in that age group. In 1930 only a trifle over 3 per cent. were among children under five. The actual number of deaths from tuberculosis among children under five years old has declined from about 450 to about 150 per year within a quarter of a century. Most of this decline has occurred during the last decade.

This indicates more than 300 fewer deaths per year in a population much bigger than that 25 years ago. Since for each death there remains 9 or 10 cases of the disease, the improvement includes the prevention of some 3,000 cases of childhood tuberculosis per year in Illinois. To what greater service to mankind could any man devote his time and energy?

A large percentage of abdominal tuberculosis in children under five years old results from the bovine infection. Thus, if control measures over bovine tuberculosis are effective there should be a significant decline in abdominal tuberculosis among these children. An examination of the statistics shows a very marked reduction. Twenty-five years ago abdominal tuberculosis accounted for 11 per cent. of the mortality from this disease among children under five years old. Ten years ago it accounted for 6 per cent. In 1930 abdominal tuberculosis accounted for only 3 per cent. of the mortality in this age group.

All of the evidence points unmistakably to success in controlling bovine tuberculosis to a large degree in Illinois. This could never have been achieved without the services of veterinarians who have practically eliminated tuberculosis from the herds of Illinois. Clean herds will not

automatically remain free from tuberculosis, however.

This was illustrated a few weeks ago in Springfield. A mother of a four-year-old boy heard through neighborhood gossip that tuberculosis had been found among the cattle at the dairy from which she had bought raw milk for four years. Inquiry at the State veterinarian's office verified the rumor. A re-test had shown a number of reactors. That mother, although otherwise very intelligent, being a graduate of the University of Illinois, believed that raw milk contained some element of nutritional value not found in pasteurized milk which justified her taking the risk. She is now a convert to pasteurization but there are thousands of raw milk enthusiasts still at large in Illinois.

Since pasteurization will probably never become universal the protection of these people depends upon the integrity and diligence with which veterinarians, physicians and health officers do their work.

*Rabies.* Next to tuberculosis, rabies is the most important health problem common to veterinarians and public health workers in Illinois. This disease has resulted in a tremendous destruction of domestic stock and to no little loss of human life in Illinois during the last decade. Our laboratory records show that rabid infection was found in more than 3,000 animal heads examined in that period. Most of these were the heads of dogs which had bitten at least one person, frequently more. This is first hand evidence that at least 3,000 people were bitten by rabid dogs and therefore infected with rabies in Illinois within the last decade.

The anxiety and cost associated with efforts at saving these people from a disease that ends invariably in death can only be surmised. Making laboratory tests of 7,000 heads is no small item. The State Department of Public Health furnished the Pasteur treatment to about 2,000 people who were not able to pay for this necessary service. Even under these circumstances, 45 people died from rabies in Illinois during the last 10 years.

It is probable that the destruction of domestic livestock has been on a much larger scale than the damage done to humans on account of rabid dogs. Veterinarians are in much closer contact with the origin and spread of rabies than are the

public health authorities. They are able to find out more quickly when rabid dogs appear in a community.

It is helpful to know that stray, ownerless dogs who recognize no master's voice are chiefly responsible for the spread of rabies. Apparently the homeless curs constitute the reservoir of infection which perpetuates this disease. This was indicated by a careful study of the histories of several hundred cases by the State Department of Public Health. The stray mad dog bites nearly as many people as do dogs with established homes. In the great majority of cases the home dog that goes "mad" gets infected through the bite of an ownerless, stray dog.

Furthermore, early spring is the time of year when rabies is most prevalent. Popular opinion associates the peak prevalence of rabies with the late summer season frequently known as "dog days." For that reason, the disease often becomes epidemic before knowledge of a threatening situation results in appropriate action.

A program of rabies prevention will have a strong appeal to stock raisers and farmers because of the great economic losses involved. Pointing out that the greatest danger comes from stray dogs will stimulate greater alertness in controlling these roving creatures. Reminding country folk that rabies is primarily a spring-time infection will tend to scotch outbreaks of the disease before epidemics become general. Educational activities along these lines appropriately timed, would probably result in greater control over rabies than invoking the quarantine law. Health officers should not overlook the opportunity of enlisting the interest and cooperation of veterinarians in this problem. Working together, an epidemic can often be scotched before it gets a foothold.

*Undulant Fever.* Undulant fever is a problem quite similar in many respects to that of tuberculosis. Man gets the infection principally from cattle and swine. It is transmitted through milk or through the transfer of blood from infected animals to the blood stream of a human. Bang's disease and Traum's disease, as the infection is known in cattle and swine respectively, are probably more destructive of domestic animal life than tuberculosis. Undulant fever is not so widespread nor so fatal in humans as bovine tuberculosis has been.

On the other hand, undulant fever is apparently on the increase. A decade ago undulant fever was not recognized as a public health problem of consequence in the United States. A total of 1,385 cases were reported in 1930. Cases were reported in that year from every state in the Union. In 1925 only 24 cases were reported in the United States and these came mostly from Texas. Within five years undulant fever has leaped from obscurity into an important public health problem of nation-wide proportions.

In Illinois 5 cases of undulant fever were reported in 1927. These were the first ever reported in this State. In 1929 the number jumped to 37 and in 1930 to 33. Last year 123 cases were reported.

It is probable that undulant fever existed before it was recognized as a specific infection. On the other hand, there is general agreement that the disease is on the increase. What probabilities are hidden behind the curtain of the future no one can say. It is possible that undulant fever may develop into a deadly plague commensurate with what tuberculosis has been in the past. The development of this possibility can be forestalled by the suppression of the infection in livestock before it has become a general threat to humanity. The task before the veterinarian and public health workers can therefore be measured in terms no less ambitious than of preventing a major human plague.

The history of all infections which have developed into great human plagues is that they have traveled in great epidemic waves. The black death of the Middle centuries reached world-wide proportions and then subsided to lesser magnitude. Malaria caused more than 12,000,000 cases of sickness in Russia shortly after the World War. Leprosy at one time was a stupendous problem. Influenza swept the world in 1918 in a periodic wave of great magnitude. Tuberculosis appears to have reached a peak that had already begun to recede when the campaign against that disease became effective. It may be that undulant fever is on the upward trend in a threat of becoming parallel to these great plagues.

Teamwork between the veterinarians and public health workers is more essential in connection with undulant fever than with tuberculosis. Pasteurization does not destroy the undulant fever



organism as easily as it does the tubercle bacillus. A large number of humans are exposed to undulant fever when infected animals are slaughtered. This risk is not involved in tuberculosis. Suppression of Bang's disease and Traum's disease in livestock is therefore the most promising point of attack. Detecting and eliminating these infections in cattle and swine not only removes the danger to humans but it leads to large economic gains for herd owners.

The seriousness of the undulant fever situation is indicated by the fact that the State Department of Public Health has organized a State Undulant Fever Committee in Illinois. On it are represented the various interests associated with the problem. Several sub-committees who represent special interests such as producers, manufacturers, stock raisers, veterinarians and the medical profession have been appointed to study undulant fever from their particular points of view. A practicable program which will result in the control and suppression of undulant fever is expected to come out of the work of these committees.

*Septic Sore Throat.* This disease is of considerable importance although in recent years epidemics have been less frequent and more limited in magnitude than in the days before pasteurization became general. From 1924 to 1930, inclusive, no less than 30 milk borne epidemics involving 5,256 cases and 84 deaths were reported in the United States and Canada. Of these, 16 occurred during 1929 and 1930. The immediate sources of infection in five of these outbreaks, which accounted for 1,145 cases and 9 deaths, were found to be cows with infected udders. While it appears that the cows must first be infected by a human in order to become a source of epidemic danger to man, the importance of the role played by the cows is in no wise minimized.

Based upon extensive and unusually well developed epidemiological evidence, Scamman concludes that:

"It is our opinion that the present weight of evidence shows that milk-borne outbreaks of septic sore throat and of scarlet fever are generally the result of an infection of one or more cows by an individual carrying hemolytic streptococci of the human type. As a result of this the milk is already infected when it leaves the cow and the outbreak is due to this infection rather than to contamination of milk in the interval between

its leaving the cow and its use by the consumer. With these ideas in mind, our recent investigations of these milk-borne outbreaks have been carried out with the aim of finding an infected cow or cows and also of locating the human source of the cow's infection. It is not always possible to locate both the human and the bovine source of infection, and it is almost too much to expect that both of these should be found in every epidemic. Both the person and the cow may show positive cultures for only a brief period, which may well have passed before an investigation is undertaken."

To control this disease, therefore, requires the most harmonious cooperation between health officials, physicians and veterinarians. The health officer must insist upon pasteurization wherever practicable. The physicians should designate on case reports the source of milk on all notifications of throat or respiratory diseases so that the health officer might grow suspicious when multiple cases which take milk from a common source begin to come in. The veterinarian should preach to producers the importance of being always on the alert for any abnormal udder conditions and to eliminate milk from such cows immediately rather than risk the ruin of his market by having an epidemic traced to his herd. Some of the worst known epidemics of septic sore throat have been spread through milk from dairies which have enjoyed unblemished reputations for high sanitary standards over extended periods.

There have been severe outbreaks of septic sore throat in Illinois, an epidemic involving some 10,000 cases having occurred in Chicago in 1912. With the extension of milk pasteurization, outbreaks have become increasingly rare, however. The only recent outbreak of septic sore throat in this State which cast suspicion upon milk occurred late in 1929 at Tonica in LaSalle County. There were about 100 cases with 2 deaths. While the epidemiological investigations gave no clear-cut results the weight of evidence pointed toward contaminated milk but specimens for laboratory examinations were taken too late to locate the offending source whether cow or human.

Simultaneously with the Tonica outbreak, however, at Baraboo, Wisconsin, a cow with an infected udder was designated as the source of an epidemic which resulted in 250 cases and 6 deaths.

*Tularemia.* Like undulant fever, tularemia has been recognized in Illinois, and indeed in

the United States, only recently as a public health problem. Only 9 and 36 cases, respectively, were reported in Illinois during 1928 and 1929 but the figure jumped to 137 in 1930 and 124 in 1931. While quail, opossum, squirrels, woodchuck, coyote, muskrat and wild rat have been known to be infected with and transmit tularemia, the cotton-tail rabbit is the great reservoir and common source of the disease for man.

#### SUMMARY

Among the diseases discussed, knowledge concerning three is sufficient to bring the combat into the open. Consequently, an efficient technique of control and prevention has developed to the point where great success has attended the efforts expended. These are tuberculosis, rabies and septic sore throat.

Undulant fever presents a complex problem which may be in process of development toward major importance. Rigid application of such things as pasteurization and the promotion of control of the corresponding diseases among stock, promises a degree of successful opposition at present. In the meantime, research should lead to a better understanding of the disease and more practical methods of control than now prevail.

Interest taken in the problem of tularemia by such agencies as the Isaak Walton League inspires hope that hunters and others who are exposed will be kept informed of risks and the means of control and prevention. The problem of prevention and control is chiefly one of public instruction.

All of these diseases involve human health and economics in a way different from the ordinary ills of man. The close and intelligent co-operation of the veterinary, medical and public health officials may be expected to result in controlling all of these diseases to the same degree that has marked the course of human tuberculosis of bovine origin.

#### DISCUSSION

Dr. Robert Graham, Urbana: I want to take this opportunity to express my appreciation of the splendid viewpoint of the importance, from a public health standpoint, of diseases communicable from animals to man. My contact with animal pathology problems enables me to have an appreciation of the statements made by the essayist regarding the close relationship between human and animal pathology, and the problems of animal and human health incident thereto. If there is any

one field more than another which should command our thought as we go about our work each day in our respective duties, it should be this important field. Illinois and other sections of the middlewest produce and will continue to produce animal foodstuff. The problems of hygiene and the relation of different contagions transmissible from animal to man may become intensified rather than decreased. The development since the time of Jenner and significant findings of Pasteur, which mark the beginning of the science of bacteriology, indicate that the greatest variation in certain pathologic processes in man and animal lies in the patient. The advances made in our knowledge to date are but a gesture of what may remain unknown, and we should keep in mind that the disease of animals may involve new or unrecognized public health problems, rather than to content ourselves with the view that all is known.

With reference to the work of the veterinarian in the field of public health there is a growing feeling among the leading physicians and the public with reference to its value and the need of more general recognition of accomplishments to date. At the present time the livestock industry of this country is threatened with a disease of cattle, sheep and swine communicable to man, viz., the foot and mouth disease, and its successful suppression at this time in California rests in the hands of federal veterinarians, the animal health officers of the nation. Foot and mouth disease has more than a public health aspect. If the plague should gain entrance to Illinois, with its two large market centers, public health officer and citizens of the state would feel the effects of this malady in one form or another. Therefore animal health is a problem which affects directly and indirectly the health and happiness of our people.

Notwithstanding commendable progress, we have not, it seems to me, developed to the fullest in every locality the type of cooperation that is available between physicians, veterinarians and public health officers. I recall my experience in the army when veterinarians, physicians and sanitarians worked together on the problems of health in man and animal. The splendid experience at the autopsy table in the laboratory, in times of emergency, proved helpful to physician, veterinarian and sanitarian in the solution of different problems.

From an educational angle, veterinary medicine, as well as human medicine, has had a gradual growth and I am glad to report to this section of your association that in the last year, veterinary education has taken a definite advanced step by increasing its curriculum to a five and six year course. The objective in training veterinarians is the same as that in training physicians. When the goal is reached, and it will be reached, we will better appreciate the qualifications of the trained veterinarian in the field of milk and meat inspection, rabies, tularemia, tuberculosis and undulant fever control. In fact, these problems are the responsibility of the animal pathologist and the trained veterinary sanitarian.

It has been my good fortune to have contacts with several city boards of health which employ veterinarians



and to note the cooperation and assistance rendered for the mutual public benefit. I would like to commend this arrangement to every city board of health in Illinois. Such an arrangement is the theme of Dr. Hall's talk, and its application is our responsibility to our respective communities.

We may believe, from our own viewpoint, that the problems of disease control, particularly with reference to the animal host, are solved. There is ample opportunity for improvement in application of known facts and finding new ideas. I can not help mentioning the splendid work done by one of your coworkers, Dr. Kirkwood of Lawrenceville, in the field of comparative pathology. It stands out prominently in the field of comparative pathology. I can remember the time, not many years ago, when physicians would come to our office and ask for information concerning tularemia, and we would refer them to Dr. Tom Kirkwood. In connection with his observations dealing with infected rabbits, confirmed many times by veterinarians and physicians, it might be well to mention that a comparable infection has since been found in sheep, and that there has come to our attention a case of tularemia in which the patient, who was a veterinarian, had been treating an undiagnosed sheep disease. The disease which developed in this veterinarian was proved by repeated serologic tests to be tularemia.

This incident serves to emphasize an important thought, i. e., that after all, the greatest difference in some of our bacterial infections exists in the patients themselves.

I would like to see the field of animal-human disease studied carefully by every health officer. Dr. Hall, during the past year, has helped many veterinarians to obtain a constructive viewpoint and assist in extending this viewpoint in different communities, and I feel that as public health officers you should be more and more interested in the field of comparative pathology and assist at every opportunity in obtaining clinical data that may help to remove some of the obscure problems which we are called upon to face from time to time.

I might add in conclusion that in our animal pathology work at the University, since July 1 of last year, there has been in the neighborhood of twenty-six thousand specimens examined and forty per cent of these have had a bearing upon public health. Stated in another way, from a veterinarians' viewpoint or looking at it strictly from a laboratory angle, some fourteen thousand specimens, which have a public health aspect, have been submitted to the animal pathology laboratory of the University.

No one can deny the importance of closer cooperation between veterinarians and public health officers, and as time goes on we shall doubtless appreciate more fully the splendid work of Dr. Hall on this subject.

There is an opportunity among physicians and among veterinarians for self improvement in this field. Last week a farmer came into the laboratory with a dog for

diagnosis. The clinical picture was rabies. He came from a locality in which the veterinarians and physicians may not be particularly familiar with this disease. The history of the case was presented; the owner had made repeated efforts to remove a bone from the throat of his rabid dog. He was not cautioned by his veterinarian or physician regarding the danger. They had, however, informed him that the abrasions on his hands might be an avenue of infection from contaminated saliva. His hands were examined and many abrasions were found on the backs. It is true that the abrasions were not deep cuts, but the epidermis was broken. This is an example of neglect and unguarded teaching. From a public health standpoint it is a distinct problem of education that must be extended earnestly and never ending.

The fund of information in rabies prophylaxis is ample. The problem is the dissemination of the information. Dr. Hall's splendid presentation will be valuable in the records of the association as a source of information and teaching. It is constructive, enlightening, and helpful to us in our appraisal of many important problems of public health.

Dr. Tom Kirkwood, Lawrenceville: Dr. Hall has given us a splendid paper on the various diseases of animals which may be transmitted to man. Dr. Graham, in his discussion, has mentioned the various diseases of this type which we are most likely to see, and Dr. Hall has emphasized the importance of these infections to the human family.

Dr. Graham has also called attention to the improvement in the veterinary service which we are getting, and points out the effect of this improvement on the public health. I cannot help but notice in the last few years that the veterinary surgeons with whom we come in contact, have a keener appreciation of their obligations to the community from the standpoint of public health. We have one in our community who is very much up on his toes. He knows his business. It is surprising how well he keeps tab on the various herds in our vicinity. He recently called me into his office and showed me a number of agglutination tests which he was making on suspected herds. He appreciates the public health value of his efforts to keep our herds clean. He should be given due credit by the community for his work. He is one of the important cogs in the organization which is attempting to eradicate those animal diseases which may be transmitted from animal to man.

During the last five years I have had undulant fever agglutination tests made in every case of continued fever which has come under my observation. In that time four cases were reported as positive. It is difficult to estimate the number of cases which occur in our county, but I have averaged about one per year. At the same time I have seen from two to four cases of tularemia a year. One of these tularemia cases was caused by infection from a fox-squirrel and another by infection from an opossum. Last summer Dr. C. G. Stoll of Summer saw a case of tularemia following a tick

bite. This was the first case from that source reported in Illinois.

Tuberculous adenitis has become rare in our county since our dairy herds have been tested and cleaned up. Prior to five years ago we saw a good many infections of this type. Careful testing of our herds and pasteurization of at least eighty per cent. of our milk has made life much safer for our children.

I have enjoyed Dr. Hall's paper and wish that every doctor in the state could have an opportunity to hear it. This paper, along with those of Dr. Graham, and Drs. Arnold and McDaniels, gives a very comprehensive review of this type of diseases and if every practitioner were familiar with the facts presented, it would help materially in reducing the incidence of those diseases which we acquire from animals. Thank you.

Dr. D. F. Luckey, V. S., Springfield: For over thirty years I have been actively engaged in the control of animal diseases and during all that time I have been very much interested in the overlapping of this work with the protection of the human family, so that a program of this kind is so interesting and instructive to me that I could hardly refrain from taking the floor for just a little while.

Dr. Andy Hall has been kind enough to attend a number of our veterinary meetings and I want to assure you that he has met there a very responsive chord, and he is very much liked by the veterinarians because he has been sociable with us.

In this long experience of mine so many things have been encountered of interest that I would not undertake to discuss many of them, but there are a few little points which, I think, have not been discussed very much in the medical profession. For instance, the per cent. of people and animals which developed rabies after having been bitten. I have heard the rumor that five per cent. of people and animals bitten developed rabies. I know in live stock, it appears that every animal, a hundred per cent. that is bitten, develops rabies. In one case, a farmer had about one hundred and twenty-five sheep confined in a barn where they couldn't get away. One of these stray rabid dogs came along, got in there in some way and, during the night, he killed three sheep, and gnawed their noses up to their eyes. That took a good deal of his time. But during the night he bit seventy-two sheep and every sheep was bitten on the upper lip and the lip was torn. And beginning on the nineteenth day every single sheep that had a scar on its lip developed rabies. That same man once had two pigs and three lambs in a little shed. A rabid dog got in among them and presumably bit all five of the animals and they all died. And so on down the line. I have had that experience many times. It appears that a hundred per cent. of the animals that are bitten develop rabies if they are actually inoculated. That doesn't apply in the human family where the bite may be through the clothing and probably the bite does not actually break the skin. But I think that every animal, where the virus of the rabies gets into the blood stream, will develop rabies.

Another thing that has never seemed clear in the

minds of the people is the variable period of incubation of rabies. We find where large bunches of cattle, sheep or other animals have been bitten by rabid dogs that the first symptoms appear, in the most acute cases, on the nineteenth day. The largest number of cases will develop between the nineteenth and twenty-eighth day after the animals are bitten, and then an occasional case will develop later. In one case cattle were bitten. The main losses were in May. Another steer developed it in August. Another steer in this bunch developed the next February. So, the point of importance is this, that when a lot of dogs are bitten in this town and the health and city authorities take steps to institute a brief quarantine, the disease dies out, and eight months later some dog leaves this town and journeys, we sometimes find as much as a hundred miles, straying through the country. That is the stray dog without a master. There is a long period of incubation. I think we have plenty of records of dogs and horses that have gone a year. It is important to take that into consideration and it is also important to take into consideration that a certain per cent. of dogs that develop rabies, no matter how good a home they have, will get up and leave home and just travel, just keep going, and, therefore, a big outbreak of rabies that we hear about where people are bitten by a strange dog, a dog that in his delirium travels and goes sometimes as far as a hundred miles.

A point of great satisfaction and interest to me, and I am glad to tell you this, is that as I started over to Champaign one Saturday not long ago I stopped to call upon a veterinarian in Decatur and in our visit he remarked that during the year 1931 several dogs in the community began to show strange symptoms, and that whenever he heard of such a dog he would get it and put it in a certain room and lock it up. During the year nine of these dogs developed rabies in that veterinarian's charge and he killed them. One of those dogs may have journeyed here to Springfield and met a lot of people and bit them. Another may have gone to Champaign and another to some other surrounding town, and another one out through the country. These veterinarians are performing that service for the public good. Every veterinarian in the state is doing that. And I want to say that the reason that I appreciate Dr. Andy Hall so much is that he is beginning to realize that nothing pleases the veterinary profession more than to have the public feel strongly that they are actually vitally and actively interested in the preservation of public health. As the secretary of the Illinois State Veterinary Association, I can pledge you without any reservation that you will find every veterinarian in the state ready and glad to work with the health authorities in suppressing the various diseases of animals that are communicable to man. I want to say that many years ago, before very much interest was taken in the question of animal diseases communicable to man, we were stamping out tuberculosis, eradicating tuberculosis. Thirty-two years ago I commenced myself and in the process I have had to do a lot by way of educating the public and bringing to them a knowl-



edge of the principles regarding the spread of disease.

So I can assure you who are interested in public health matters that the veterinary profession feels complimented to receive the recognition that Dr. Hall has given us, but we are always ready to do our part.

Dr. C. R. Smith, Decatur: In Decatur we have two representatives from the veterinary association in our local health council and the veterinarians in Decatur report to the health department diseases of animals that have any relation to human disease. I appreciate the fact that the work they have done in the past on the tuberculin test of cattle has helped us a lot in our work in the tuberculin test of high school students, which we did just about a month ago. The people were educated to the value of the tuberculin test and we had very little trouble in getting practically ninety per cent. of the high school children tested for tuberculosis.

Hon. Clarence Griggs, Ottawa: I think there is no better work Dr. Hall is doing than sending these men around seeking the opportunity to educate the laymen on these questions. Dr. Dana Palmer, one of Dr. Hall's assistants, gave a very interesting and instructive address. I think that is a splendid idea to educate the laymen. They don't get this except in just that way.

(Nothing said by Dr. Hall in closing.)

## SURGERY, X-RAY AND RADIUM IN THE TREATMENT OF CANCER\*

H. K. SCATLIFF, M. D.

CHICAGO

The literature on all aspects of the cancer problem is so very voluminous that one who begins to delve into it is soon brought to a very humble state of mind when regarding our present method of combating malignant neoplasms.

Cancer is mentioned in the early Papyrus of Ebers fifteen hundred years before Christ. Hippocrates brought diathermy into play when he burnt out a carcinoma of the neck in four hundred B. C. Celsus treated carcinoma of the breast by surgical excision, advising against removal of the pectoralis major in thirty B. C. and the more or less successful treatment of cancer by excision, ligation of vessels and cautery was carried on from that time until the seventeenth century, when chemical conceptions of its cause held sway and gave way to treatment by caustics and alkalies, internally and externally.

We have been told that carcinoma is increasing at the present time. We *do* know that the death rate varies from one hundred to one hundred and fifty per one hundred thousand; but it is very likely that any increase of cancer mortal-

ity is more apparent than real. It is questionable whether deaths from carcinoma have increased at a greater rate than the number of people living into the cancer age, that is to say, the increase of human longevity have brought more people into those decades in which malignant tumors are most common.

The only means of combating carcinoma in the individual remains, radical surgical removal of the malignant mass with either the hot or the cold knife, and ionization and destruction of the tumor substance by the means of x-ray or radium. But today it is not possible to compare with any degree of accuracy which of these methods is the best. A study of statistics will tell us which is probably the best means of therapy to employ against carcinoma in a given anatomical location, but before we are entitled to say, that this is best, or that is best, we should consider the results of each procedure in the same type of cancer, namely, after determining its relative degree of malignancy, the degree of lymphatic involvement together with its location within the body, and possibly, an attempt made to determine its radio-sensitivity co-efficient. It would seem therefore, that a comparison of results can only be made when malignancies of the same class and same degree of metastases can be compared.

Broders of Rochester, has taken a step in this direction. He has classified malignancies into grades one, two, three and four. Grade one is that which is the most differentiated, consequently the least malignant, and offering the best prognosis. Grade four is at the other extreme, with grades two and three intermediate in degrees of malignancies.

Ward and Farrar of The Women's Hospital of New York City, have presented a series of about 350 cases of cancer of the female genitalia, over a period of ten years and for which they have arranged a classification, but their classification is based on the extension of the disease and the involvement of the parts. Their end results consider treatment with radium only, and range in the neighborhood of 25 per cent. of five year cures. Their classes one and two being carcinoma of the cervix only and showing 57 per cent. of five year cures and three and four, in which the disease has advanced beyond the cervix and for which they claim 17 per cent. cures.

Of a total of sixty authors, writing of 20,400

\*Prepared for the cancer committee and read before Staff Meeting Ravenswood Hospital.

cases of carcinoma in the past three years, forty or 66 $\frac{2}{3}$  per cent., differentiated their cases into those best suited to surgery and those best suited to radiation according to body location. Thus creating a tendency to recommend treatment (that is—surgery, x-ray or radium) according to where the cancer is located. The consensus of opinion suggests that the best individual treatment occurs when the cellular characteristics, the probable irradiation response and the chance for cure by excision methods are all considered. In practically all cases, excision methods used along with irradiation increase the chances of a cure. The hope of an ultimate cure in an individual case requires that the treatment must be of sufficient scope to reach beyond the furthest extension of the disease.

There is no reasonable doubt in the light of our present knowledge that the surgical removal by wide excision with the scalpel is the most exact and most dependable of all single agents for the destruction of carcinoma. But because of the numerous lymph vessels remaining at the close of an operation done with the scalpel, which may carry cancer cells into healthy tissue, it also has fallen far short of what otherwise might reasonably be expected of it.

The majority of the writers referred to above, seem to feel that in general, endodermic carcinoma, namely those of the stomach, intestines, uterus, ovaries and kidneys give better end results when treated by mass excision. On the other hand, exodermic carcinoma, epitheloma of the skin, mouth, pharynx, larynx, vagina, cervix, etc., are treated by physical agents—irradiation—more successfully than with the knife. A combination of surgery and irradiation being the best for the treatment of lymphatic metastases.

From a study of this literature it seems evident that a systematized mode of attack yields the best results keeping the system elastic enough to change when warranted by improved results. In early lesions in Broders' class one and two, operation, radium or x-ray are optional. Equal results are obtained. In operable cases of classification three and four operation, with irradiation before or after, or both seems advisable. In cancer of the female genitalia it is self evident that the mortality with an extensive Wertheim operation is considerable—from irradiation it is negligible. The ideal method would seem to be a close co-operative study of each individual

case, between the attending physician, the pathologist and the radiologist, and a co-operative checkup on all three by a followup department. The irradiation part of the treatment which seems to be productive of the best results (I'll not attempt to settle the quarrel amongst the surgeons as to the relative merits of the scalpel or the cautery or the so-called radio-knife) seems to be, in this country and at the present time, an intensive broken dose method of from 2,400 to 6,000 milligram hours with sufficient filtration to provide plenty of hard well filtered gamma radiation. This is accomplished by using the wall of the applicator which is .5 millimeters of silver and one millimeter of brass in the uterus, and up to two millimeters of lead with 2 centimeters of rubber in the vagina. Much of the treatment can be carried out in three weeks, in a series of eight or more applications followed by high voltage x-ray through four large portals. Only one course of radium is given, unless there is demonstrable activity in the treated field after three months. This much radiation presupposes that the patients' general condition is good, with a red count of over three and one-half million. A count below three and a half million or below 50% of hemoglobin is best treated by a preliminary transfusion. If the patient's condition is poor and the growth is massive, with wide metastases, it is best to abandon any systematized technic, but to carry the treatment forward as conditions warrant.

In regard to reported cases of stimulation of cancer growth by x-ray or radium. This phenomenon is usually reported in those clinically early cases succumbing to a widespread metastasis even after successful healing of the primary lesion, this probably being the result of the existence of metastases even before the treatment was begun and such results being erroneously quoted as an example of gross stimulation by irradiation. Cinti in his film shows the action of irradiation on cancer cells being growth restraint and cell destruction by ionization and phagocytosis.

Of late, considerable attention has been called to so-called "radio sensitivity" of carcinoma growths. Every radiologist has had the experience of seeing some tumors respond more readily to a given dose of x-rays than others. To state the matter simply, it merely means that immature cells and cells in an active state of



division are more sensitive to irradiation than cells that have already acquired adult morphologic and physiologic characteristics. It has been shown, that cells in an active state of division are seven times more sensitive to irradiation than resting cells. Thus the ordinary cancer cell requires from four to six times a skin erythema dose for its destruction. In general, the younger the cell the more susceptible to the rays.

In conclusion it would appear that the experience of these 20,400 cases of cancer of all kinds and all grades have led these sixty writers to feel that the best results are obtainable by First: following a given system of attack. Second: By classifying the tumors from their location, their pathogenicity and their degree of involvement. Third: By estimating the probable outcome from treatment with surgery, with radium, with x-ray or with a combination of all three. Four: By the close co-operation of a follow-up department and Fifth: By the closest co-operation and harmonious activity of the surgeon, the pathologist and the radiologist all working together.

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### LOCAL ANESTHESIA AS AN AID IN THE REDUCTION OF FRACTURES AND DISLOCATIONS\*

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GREAT LAKES, ILL.

Most American text-books on the treatment of fractures and dislocations give little space or enlightenment to the use of local anesthesia. Brief references are made to its employment and the practice while not condemned is not enthusiastically endorsed. Scudder<sup>1</sup> states "that rigid and strictly standardized methods of fracture treatment are undesirable and never can be developed." Speed<sup>2</sup> admonishes "that fracture treatment has not kept pace with the brilliant advance in many divisions of medical science," and emphasizes the deficiency in the knowledge of practical fracture treatment possessed by a large majority of newly graduated medical students. The subject of the neglect of fractures and the necessity for attention to them and to

the training of men in that field is being seriously considered by the medical societies of the world.

Standardization of training in the treatment of fractures should include anesthesia as a very important sub-division. Local or regional anesthesia should be especially stressed for here is an adjunct that exceeds its primary object of merciful analgesia.

The merits of local anesthesia are based on two great factors, first as a safety measure for the patient and second as a very valuable adjunct in the management of the fracture itself.

The direct and indirect dangers attending the administration of the various general anesthetic agents are well known and need not be discussed here. Surely an anesthetic agent that permits gentle yet efficient manipulations of fractured or dislodged bones without the need of wide trespassing upon brain or uninvolved parts is an adjunct agent greatly to be desired. We have in procaine hydrochloride such an agent. We wish to present our method of inducing combined analgesia and muscular relaxation.

Depending only upon the site of trauma, we employ one or combine two of the following methods of administering local anesthesia in all types of fractures and dislocations.

(a) Regional field and nerve blocking.

Stock solution of  $\frac{3}{4}\%$  procaine hydrochloride to which four to six minims of one to one thousand solution of epinephrine is added to each one hundred cubic centimeters of procaine. Dosage ten to one hundred and fifty cubic centimeters.

Lesion—simple or compound fractures of skull; spine; forearm; wrist; hands; below the knee; ankle; and foot.

(b) Intramuscular injections.

Same stock solution of  $\frac{3}{4}\%$  procaine.

Dosage, combine injections with (a), using ten to thirty cubic centimeters into the bellies of each muscle.

Lesion—fractures and dislocations of the upper and lower extremities.

(c) Brachial plexus block.

Same stock solution of  $\frac{3}{4}\%$  procaine.

Dosage—30 cubic centimeters.

Lesion—Fractures and dislocations of the upper extremity.

(d) Low intraspinal block.

\*Read before Section on Surgery, Illinois State Medical Society, Springfield, May 18, 1932.

Procaine hydrochloride crystals dissolved in spinal fluid.

Dosage—limited to one milligram for each pound body weight.

Lesion—Fractures and dislocations of pelvis and lower extremity.

We have found local anesthesia adaptable to all types of fractures and dislocations. We have not had to resort to general anesthesia in over two hundred consecutive cases of fractures and dislocations. The female patients have been excellent subjects. The child even below the age

bellies of the contracted muscles combined with a regional blocking of the sensory nerves. We do not favor injection at site of fracture into the so-called "fracture hematoma." The contused or broken skin may not be safely cleansed and the introduction of the anesthetic solution at the fracture ends may convert a simple fracture into a compound one. We inject for analgesia a transverse block well above the line of fracture, at least five centimeters. This injection crosses the path of the regional sensory nerves. Individual identification of nerve is not neces-

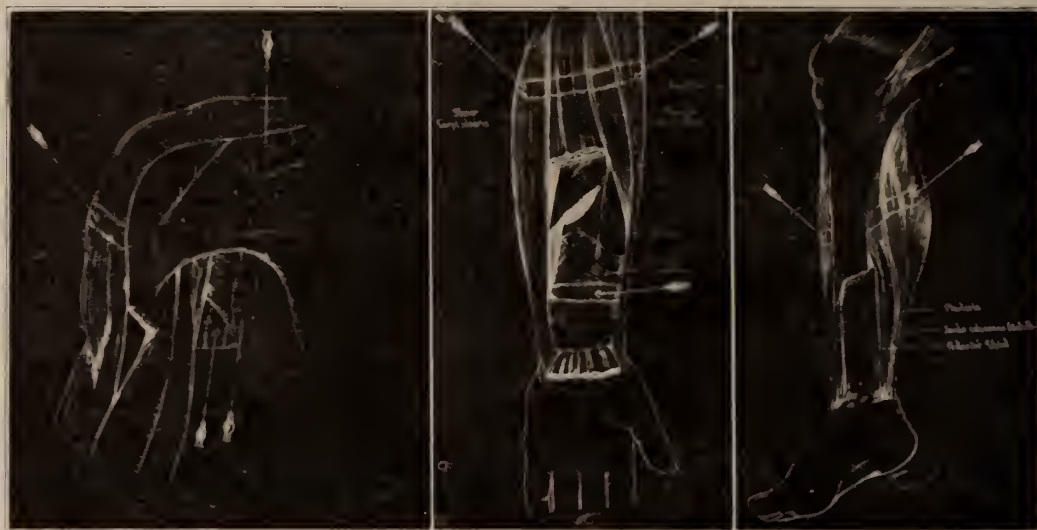


Fig. 1

Fig. 2

Fig. 3

Figures 1, 2 and 3 demonstrate intramuscular injections for the reductions of fractures.

of reasoning has been easily managed and the insane patients have reacted surprisingly well. The only limitation for local anesthesia is the control of aseptic conditions—the necessity for surgical cleanliness at the site of injections of sterile procaine solution.

Time will not permit the detailed treatment of fractures and dislocations. Each bone and joint carries its individual problems based on site of trauma. Generally it may be stated that the reduction of fractures is a mechanical problem and that the restoration of good alignment and apposition of the fragments is largely dependent upon the control of muscular relaxation. A rational reduction must be based on fracture site and the all important associated mechanics of muscular contraction.

This may be attained with surprising ease by the intramuscular injection of procaine into the

sary. We consider a diffuse infiltration to be safer than "spearing" and the injection of individual nerves. Intra-muscular injections are then made into the muscles involved in the fracture, a careful survey having first established the muscle pull on both the upper and the lower fragments. The patient may then be taken to the fluoroscopic room, the five or ten minutes intervening being sufficient for the establishment of analgesia and relaxation. There is no pain and the analgesia persists two to four hours after the reduction. Most important is the sustained relaxation of muscles, the intra-muscular injections having blocked the reception of nerve stimuli by acting on the motor end plates. In fractures with stubbornly resisting fragments, this relaxation may be controlled indefinitely by repeating the intra-muscular injections. However, the repeated injections are rarely needed as



the fixation and traction splints usually control the reduction.

For major fractures and dislocations of the upper extremity, we favor brachial anesthesia. We employ the supra-clavicular route of Kulenkampff.<sup>3</sup> This method requires an exact technique that may not be attained in children or those unable to co-operate. Fortunately we have in the regional field block and intra-muscular injections a method adaptable to all patients.

Intra-spinal block is the method of choice for fractures and dislocations of pelvis and femur and high leg fractures. Below the knee, the regional field block and intra-muscular injections are indicated as the muscles and contractures are readily reached.

The need for elaborate and complex mechanical devices for traction and fixation is greatly reduced. Usually a light moulded skin plaster cast will suffice for the upper extremities. A reinforced body cast may be necessary for difficult fractures of the humerus. In the major fractures of the lower extremity, we favor the Thomas splint and the Balkan frame and employ skeletal traction if overriding persists. The relaxation following intra-spinal block or the intra-muscular injections has lessened the need for traction; skin fixation straps with light traction are usually sufficient. The problem becomes one of careful maintenance of a well reduced fracture. The patient has witnessed the reduction, often has aided remarkably by exerting counter traction and shifting position when necessary. Awake and alert he now continues an able interested assistant.

Contrast this to general anesthesia. The ether and gas anesthesia give only transitory relaxation; casts, splints, and traction must be depended upon to maintain the hurried reduction often through post anesthetic delirium and the indefinite period of overpowering muscular effort by traction fatigue.

The above methods of local anesthesia are indicated in the difficult fracture and dislocation problem, such as compound and old ununited fractures and old unreduced dislocations requiring open operation. We have noted a greater percentage of closed reductions in our series of fractures since discarding the use of general anesthesia as the sustained relaxation of the muscles involved and the very important aid

rendered by the co-operation of the patient increase the opportunities for good reduction.

### Series.

Our series include:			
Fracture of skull:		Fracture of Tibia:	
Simple .....	6	Simple .....	14
Compound .....	5	Compound .....	8
Fracture of Spine.....	8	Old ununited.....	6
Fracture of Pelvis.....	12	Fracture of Fibula:	
Fracture of Scapula.....	1	Simple .....	11
Fracture of Humerus:		Compound .....	3
Simple .....	12	Dislocation of:	
Compound .....	6	Inferior Maxilla old ir-	
Old ununited .....	4	reducible .....	2
Fracture of Ulna:		Dislocation of:	
Simple .....	14	Acromioclavicular Joint,	
Compound .....	6	recurrent .....	6
Old ununited.....	2	Sterno-clavicular Joint,	
Fracture of Radius:		recurrent .....	4
Simple .....	22	Dislocation of Shoulder:	
Compound .....	4	Recent .....	7
Old ununited.....	4	Old irreducible.....	4
Fracture of Scaphoid:		Recurrent .....	6
Simple .....	8	Dislocation of Elbow.....	6
Fracture of Femur:		Dislocation of Wrist.....	2
Simple .....	19	Dislocation of Hip.....	4
Compound .....	4	Dislocation of Ankle.....	4
Total .....	224		

The reduction in morbidity is obvious. The direct and secondary dangers are local infection, nerve trauma, and emboli. These factors are considered remote as the actual fracture site or joint is never entered and we have never encountered nerve trauma or emboli. Hospitalization is reduced, the ambulatory treatment of fractures being greatly extended.

Figures 1, 2, and 3, demonstrate the intra-muscular injections of procaine in the treatment of fractures.

In conclusion we wish to again emphasize the valuable role local anesthesia may play not only as an analgesic agent but as an adjunct in the treatment of fractures and dislocations. The blocking of the reception of nerve stimuli by the local action on the motor end plates of the muscles involved in the fracture or dislocation combined with a regional sensory nerve blocking affords safe, efficient and prolonged relaxation not seen under general anesthesia.

It is the common practice throughout the land to administer ether or some general anesthetic agent in the imperative treatment of traumatic surgery. The employment of local anesthesia appears to be restricted to that group of patients physically unfit for general anesthesia. The decrepit are permitted local anesthesia so as to be spared the direct and secondary dangers attending general anesthesia. It seems logical

that the anesthetic of choice for the poor risk should also be favored for the strong.

#### REFERENCES

1. Scudder: Treatment of Fractures, 10th Edition.
2. Speed: Textbook of Fractures and Dislocations, 2nd Edition.
3. Labat: Regional Anaesthesia, 1923, page 185.

U. S. Naval Hospital, U. S. N. Training Station.

#### DISCUSSION

Dr. George B. Lake, North Chicago: I would like to know the percentage of procaine used.

Lieut. Commander M. D. Willcuts, Great Lakes (closing the discussion): We use three-fourths per cent. procaine. At the Naval Hospital we are very busy so for my own convenience I use three-fourths per cent. stock solution. I use that strength solution routinely for intramuscular injections. I have not employed any anesthetic except some type of local for closed or open fracture cases and general surgical operations in over 2,000 consecutive cases performed at the Great Lakes Hospital during the past two years.

The question of the Bohler method—I did refer to it very briefly because I do not condone it. I consider it to be unnecessarily dangerous. We are certainly producing minute compound fracture when we inject directly into the hematoma at fracture site. I believe that injecting 5 cm. at least from the fracture site to be much safer and as efficient.

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#### DIGITALIS AND QUINIDINE—THEIR USE\*

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In order to understand the action of and indications for any therapy in cardiac disturbances, it is best that I briefly summarize the important basic physiology and then define the pathologic disturbances of rhythm and force, which, aside from myocardial degeneration and valvular defects, are a most important indication for treatment.

The heart, as we all know, is controlled by a dual mechanism of nerves, the inhibitory receiving its branches from the vagus and the accelerator from the sympathetic, both of which normally keep each other in balance and enter into the formation of the cardiac plexus. The action of both these fibers have been demonstrated experimentally and it has been shown

that branches from these nerves enter actively into the control of the cardiac rate which has its origin in a little patch of specialized tissue lying in the right auricle at its junction with the large veins and is known as the S. A. node, or Keith Flack node.

It has further been shown that impulses arising in the S. A. node pass down the auricle by way of the muscle fibers to the auriculoventricular septum wherein is located a ganglion known as the A. V. node or node of Tawara. The impulses continue to travel from the A. V. node down the bundle of His by way of nerve fibers to the ventricular musculature and the chordae tendinae. The bundle of His, by the way, is the only proven tract of nerve fibers known to exist in the heart.

The heart as an organ possesses a physiological function peculiar to itself only, namely—automaticity. By this is meant that the stimuli which excite it to activity arise within the tissue itself and are not brought to it through extrinsic nerves. Furthermore, the musculature has two physiological properties whereby it differs from other muscle tissue.

First, the power maximal contraction, which means that the musculature will contract with its full strength, no matter that the degree of stimulation. And, second, the refractory period of the heart which is a period of inexcitability. This period lasts practically the entire systole, during which time any stimuli reaching the ventricle do not produce a contraction. However, stimuli reaching the ventricle during diastole produce another contraction which is followed by a longer rest period known as a compensatory pause.

Now for the pathologic disturbances:

1. Sinus arrhythmia—the irregularity is of the whole beat and the pulse and apex correspond; increase in rate with inspiration and decrease with expiration.

2. Extra systoles—caused by impulses arising either in auricle or ventricle. If arising from ventricle it causes it to contract, anticipating the next regular impulse, which arrives when the ventricle is in the refracphase and hence it does not contract and the auricular impulse is wasted. The diastole will be longer because it will be longer before the next impulse reaches the ventricle. If it arises in the auricle then there will

\*Presented at scientific meeting, Oak Park Hospital, May, 1932.



be a premature contraction of both auricle and ventricle followed by a normal pause.

3. Paroxysmal tachycardia—characterized by paroxysmal attacks in which heart rate is between 100 and 200, beginning and ending suddenly. The heart rate is regular.

4. Auricular flutter. Impulses arise from a single focus in auricle and cause it to beat rhythmically at a rate of 200 or over. Ventricular rate is usually about half this because of partial heart block producing a 2:1 or 3:1 rhythm.

5. Auricular fibrillation. In this case the auricles do not contract normally but are in diastole with many fibrillatory twitchings arising from pathological impulses originating in many areas. Numerous abnormal impulses are carried to the A. V. bundle and reach the ventricle in irregular fashion, making the ventricular contractions disturbed and irregular.

6. Heart block is a condition of faulty conduction of bundle of His in which ventricle assumes their own control independent of pace maker. Beat about 30 per minute (Stoke Adams Syndrome).

7. Alternation of the heart. Strength of the systolic beats of ventricle vary so that larger or smaller amounts of blood are expelled at alternate contraction.

We come now to digitalis and its use in cardiac pathology. Digitalis affects the heart in two ways:

1. It stimulates the vagus center in the medulla.

2. It exercises a direct action upon the cardiac muscle.

By its action upon the vagus it delays the conduction of excitation between the auricles and ventricles, and thereby increases the interval between auricular and ventricular contraction.

The indication for digitalis has been summarized by Eggleston as follows:

1. The indication for the administration of digitalis is determined by the degree of heart failure and not by the cause of the failure.

2. The dosage and the criteria of the action of digitalis are identical irrespective of the cause of the heart failure.

The types of heart failure where digitalis is definitely indicated is as follows:

1. Auricular flutter. The cardinal indication for the exhibition of digitalis is auricular flutter and the indications for digitalis is this form of arrhythmia which are just as definite when there is no dropsy or signs of broken compensation as when such findings are present. These signs of congestive heart failure are due to fatigue of the ventricle caused by the rapid contractions and will seldom occur if the flutter is properly treated.

2. Auricular fibrillation in which the auricles beat rapidly—150—300 times a minute and the ventricle half that rate; digitalis is indicated when it cannot be controlled by quinidine.

3. Impaired tonicity. The characteristic signs of loss of tone of the myocardium are: Edema, cyanosis, swollen liver. Such symptoms associated with auricular flutter are almost always secondary to this and digitalis is indicated.

Now for the contra-indications for use of digitalis:

1. Increased irritability.

(a) Extra systole. The evidence that digitalis increases the property of irritability seems conclusive. One of the commonest cardiac signs of toxic doses of digitalis is extra systole. If extra systole is the only disturbance found digitalis is contraindicated. But if occurring with a dilated heart the extra systoles should be ignored as far as contraindications are concerned.

(b) Paroxysmal tachycardia. The results obtained with digitalis in this condition have been unsatisfactory and paroxysmal tachycardia can be produced by digitalis. Therefore, quinidine is indicated.

2. Impaired conductivity. As conductivity is depressed by digitalis it is harmful in any type of block unless there is some associated loss of tone and then it may be given.

3. Myocardial infarction: In patients with coronary occlusion it may be given late when abnormal rhythm or loss of tone occur. It should not be used in angina pectoris.

#### *Doubtful Uses of Digitalis.*

1. Pneumonia. The question whether the use of digitalis in pneumonia does good or harm has been discussed and is still unsettled. One author uses it routinely in his treatment of all pneu-

monias while another found that in two groups one digitalized and the other not, there were 100 deaths in the control group while there were 122 deaths in the digitalized group.

2. Digitalis in myocardial degeneration needs the most careful consideration; its range of utility is exceedingly narrow, for quite apart from the fact that it may be distinctly contraindicated, as in partial heart block, there is no clinical evidence to warrant its routine prescription. Digitalis treatment, except under certain special circumstances, has no useful application in the treatment of myocardial degeneration.

*Dosage and Methods of Administration.* In order to understand the method for administration it is best to remember the vital point that full digitalization must be administered before we can say that the desired effect cannot be produced on any particular patient. And by full digitalization is meant the administration of an amount of the drug sufficient to secure beneficial changes in the circulation, or to induce symptoms of toxicity.

In administering digitalis it is extremely important to realize that a certain amount must be accumulated in the body before any therapeutic effect will become evident. The drug is slow in affecting the heart, while on the other hand, its action, after being instituted is prolonged. If the dose be repeated over a period of time at a rate faster than that of elimination, the action of the drug becomes cumulative. While speaking of cumulative action it is best that I mention here the common symptoms of digitalis toxicity encountered such as: nausea, vomiting, headache and vertigo. Toxic effects on the heart in the form of extra-systoles, coupled rhythm, partial heart block, etc., may appear. The appearance of any of these symptoms calls for the cessation of further dosage for at least 24 hours until untoward effects disappear.

According to Eggleston the total amount of digitalis necessary for obtaining full therapeutic benefits may be calculated from the patient's weight. By this method the average total dose by mouth of a carefully standardized tincture is 0.15 c.c. (2.25 mms.) per pound body weight. In other words, a man weighing 150 pounds would require  $150 \times 2.25$  or 337 mms. of a tincture. It is also well to remember here that

a drop from a dropper is not a minim and this may be the cause sometimes for failure.

There is no fixed method which must be followed in the administration of digitalis. For patients suffering severe decompensation under close observation, full therapeutic effects can be obtained in from 12 to 36 hours, in the majority of cases, by following the method of administration outlined by Eggleston. The total amount of digitalis required is calculated from the weight of the patient. One-third to one-half of the total amount required may be given at a single administration to be followed in 4-6 hours with one-fourth to one-third of the total amount. The remainder is then given in a few doses of small size at intervals of 4-6 hours. Before giving the first dose it is important to make certain whether or not the patient has been taking any digitalis during the two weeks immediately preceding, so that the size of the dose may be diminished, if necessary. The interval of 4-6 hours between doses allows time for complete absorption of each dose before the succeeding dose is given, therefore, avoiding overdosage.

It is not very wise to always follow this method of massive treatment, but it is always well to know the total amount required for full digitalization and with that in mind proceed in a somewhat modified manner.

In the treatment of patients who are not in imminent danger of failure, such as patients seen in office practice, rapid digitalization is not indicated. Doses of 15 or 30 mms. (30 to 60 or 60 to 120 drops) of tincture, may be given three times daily, or as often as every 4-6 hours until the signs of digitalis action appears. In each case the total amount of drug necessary to obtain full therapeutic effects should be estimated and borne in mind. By this method full digitalization may be effected in from 3 to 7 days, depending upon the size and frequency of doses.

After the stage of full therapeutic effects has been attained the patient can be kept in a state of optimum benefit through the daily administration of from 15 to 30 minims of the tincture. The daily maintenance dose varies with the individual and the product used and after it has been worked out it may be used regularly for a long period of time without further change. The amount of digitalis that disappears from the body each 24 hours has been found to average



between 22 to 43 minims (45 to 90 drops) of tincture.

Before leaving digitalis entirely I would just like to mention its use in children with heart disease. One author in a report of sixty-seven cases found that it did not afford much relief. Two other authors, however, seemed to think that the use of digitalis was beneficial and that the signs of congestive heart failure rapidly disappeared with its use. It was also found that children weighing over 40 pounds required about 50 per cent. more digitalis per unit of body weight than would be required for adults.

Now that I have finished digitalis I come to quinidine and its uses in heart disease. We know that quinidine has good effects in some cases of cardiac disease such as auricular fibrillation, paroxysmal tachycardia and the rapid heart due to hyperthyroidism. Fibrillation being the most important, I shall begin by discussing it, but before doing so it is best to establish certain criteria for the selection of those cases in whom the drug should be tried.

1. It should be used in those cases in whom it seems desirable to abolish the fibrillation for the symptomatic relief of the patient. If the patient has no distressing symptoms quinidine is not indicated.

2. The most favorable cases are those in whom the fibrillation has been of short duration.

3. Those cases are most favorable that have no signs of congestive heart failure or in which the signs of failure have responded well to digitalis. Those that have not responded should not be given quinidine.

Next I come to the use of quinidine in the paroxysmal tachycardia. This drug seems to control the attacks when given at the time of attack, and when small doses are taken over a long period of time the attacks seem to disappear entirely.

As to its use in hyperthyroid tachycardia, it seems to have been found that the heart rate persists in being rapid after thyroidectomy and that quinidine brings the sinus rate back to normal.

There seems to be some divergence of opinion as to dosage in the administration of quinidine, but this consensus of opinion is as follows: The

first day the patient is given 3 grains to determine the absence of quinidine idiosyncrasy. If none of the symptoms of cinchonism develop, the next day the patient is given 6 grains of quinidine every four hours day and night.

The maximum amount of quinidine that can be given safely in 24 hours varies between 30 to 40 grains. After sinus rhythm has been established 3 grains three times daily and should only be taken at times of attack.

Before leaving quinidine it is best that I mention the toxic symptoms as nausea, vomiting, dizziness, headache, tinnitus, diarrhea and urticaria which call for caution and discontinuance of treatment. Pushed farther than this we get the effects on the heart which may be anything from toxic rhythms to complete standstill of auricle and death.

#### CONCLUSION

The facts set forth in this paper are not new; but just brief, concise statements regarding the basic pathology, the indications for treatment and the methods for obtaining the best therapeutic results.

Facts of this type are always important enough to be remembered.

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#### BIBLIOGRAPHY

Indications for Digitalis Therapy in Cardio Vascular Diseases: Strond, W. D. and Bromer, A. W.: *Jr. of Med. Soc. of New Jersey* 27:940-947 (December) 1930.

Uses of Digitalis in Heart Failure: Bohen, P. T.: *Nebraska State Med. Jr.* 16:352-357 (September) 1931.

Digitalis Dosage in Auricular Fibrillation: Boas, E. P.: *American Heart Journal* 6:788-803 (August) 1931.

Myocardial Degeneration: Parsons, B. Smith: *The Lancet*, 215:1332-1355 (December) 1928.

Therapeutic Use of Digitalis: Goldsmith, L. H.: *Northwest Medicine*, 30: 349-353 (August) 1931.

Clinical Aspects of Digitalis Therapy: Andrus, E. C.: *Bulletin U. of MD.*, 15:162-166 (May) 1931.

Value of Digitalis Treatment in Children with Rheumatic Heart: Sutton, L. P., and Wyckoff, J.: *Am. Jr. Diseases of Children* 41:801-815 (April) 1931.

Digitalis Studies of Children with Heart Disease: Schwartz, S. P., and Levy, J.: *Am. Jr. Dis. of Children*, 42:1349-1363 (December) 1931.

Present Status of Quinidine Therapy: Maynard, E. P. Jr.: *New York State Journal of Medicine*, 31:1311-1315 (November) 1931.

Rational Use of Quinidine in Treatment of Auricular Fibrillation: Porter, W. B.: *Southern Medicine & Surgery*, 92:321-323 (May) 1930.

Use of Quinidine Sulphate in Auricular Fibrillation: Hurxthal, L. M.: *Surgical Clinics of North America*, 8:109-113 (February) 1928.

Quinidine Therapy in Treatment of Cardiac Irregularities Due to Hyperthyroid: Anderson, J. P.: *Annals of Internal Medicine* 5:825-828 (January) 1932.

## THE NECESSITY FOR CORRELATION OF COUNTY SOCIETY PROGRAMS\*

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To begin, the title of this paper limits its scope very decidedly to the smaller societies in areas of relatively sparse population. Most of our county societies fall in this classification. Some of them have already used procedures similar to ours, and I have no intention of attempting to present a new idea, but to emphasize the values of one already in use.

Perhaps in the birth agonies of my talk it will be well to touch upon the necessity for scientific programs themselves. This sounds so obvious as to border on foolishness, but it is not. Many members seem to have missed the point entirely. The principal object of the scientific part of county society programs is not to give a great deal of technical information, or to enable the listener to go forth and immediately put into use procedures of which he has never heard before. No man is enabled to dash out and hemisect a patient by hearing the most learned and able discussion of extensive thoracoplasty, but the discussion gives him a notion of the present-day trend of thought in thoracic surgery, and is accordingly valuable, even though the listener never has occasion to examine another chest. The idea of keeping abreast of modern medical thought should receive most emphasis, and it does not always get it. The digestion of the literature is difficult; a very *wide* wandering in the acres of print is always a physical impossibility for the general practitioner—it is very hard to combat weariness and the innate laziness which all of us have in good share, and for this tendency to fall from grace in the matter of reading there is only one antidote, which is the stimulating presence of those thinkers who are pioneers on the various frontiers of medical advance.

Most of the counties throughout the state have one meeting each month, at which time society business matters, scientific presentations, and sociability are combined. This is all very well—but there are twenty-nine or thirty other nights in the month, some of which ought to be devoted to medical culture.

More frequent meetings within the same county present almost insuperable difficulties. The small groups are unable to support a secretarial outlay, but they are still large enough to inflict a considerable burden of correspondence, collections, and so on, upon the unfortunate secretary and his office girl, and the system of notification—which ought to be unnecessary, but is not—is enough to put a few burrs in the hide of the most docile plow horse. I can testify from personal experience that one meeting per month is all I care to negotiate. Coupled to this is the idea that unless there should be a sudden revival of interest on the part of the membership, only a faithful few can be counted upon for frequent attendance, and the monetary cost, in our own group, would present a problem.

Still there remains the fact that many are not satisfied with the amount of scientific pabulum that is being dealt to them, and for this group we have worked out a scheme of cooperation between the counties. Thursday night of each week has been sanctified to the glory of medicine by Franklin, Perry, Williamson, Union and Jackson counties, which gives those who are interested four meetings a month to attend. The results have been very good. Each secretary announces all meetings to the membership of the adjoining counties as regularly as he does to his own. We have had almost no overlapping either of speakers or subject matter, because the secretaries know fairly well in advance the programs of the other counties. We are fairly good travelers in the south end of the state, and attendance has been, in the main, quite fair. The whole area has benefited by the arrangement.

But even this leaves something to be desired. It is fifty odd miles from my home to that of the most distant secretary of this group. Obviously, this prevents the frequency of secretaries' conference that would be desired.

Two of our leaders have concocted a scheme for remedying these defects. This idea is being assiduously promoted, and if it ever develops, the intent is for the secretaries to block out a joint program a year in advance; to abandon the idea of each society acting as a unit, and, selecting a centrally located town, to equalize the problems of distance, to have a weekly seminar for the whole group of counties, thus eliminating over-lapping. To be sure, each county society must continue to function to re-

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tain its autonomy—and by thus separating business and scientific sessions, both will profit. By drawing from a large area, with each member of each county society knowing that his own group is committed to the success of the undertaking, we should be able to feel confident of a good turnout and avoid an all too common source of secretarial embarrassment. This scheme is not without its faults, but, in the words of the famous Tommy Atkins. "If you knows of a better 'ole, go *to* it."

### PERIARTERITIS NODOSA WITH REPORT OF A CASE\*

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Although periarteritis nodosa has been known as a pathologic entity for about 75 years (Kussmaul and Maier, 1866) and had been described about fifteen years before that (Rokitansky, 1852), it is only within recent years that papers dealing with this disease have appeared in considerable numbers. Perhaps the greatest stimulus to the study of this condition has been the discovery that, at least in some of the cases, it is possible to make the diagnosis during the patient's life, and that the greatest stumbling block is not so much the inherent diagnostic difficulties, which are considerable, but the infrequency with which the consideration of this disease occurs as a possible solution in a puzzling set of symptoms.

Periarteritis nodosa is a rare infectious disease of as yet unknown etiology, characterized pathologically by the formation of nodules and later of aneurysms along the course of blood vessels, and clinically by protean manifestations which depend upon the location of the lesions. Because of the various organs and groups of organs involved, this disease has interested not only internists and surgeons, but also members of all the specialties.

In spite of the acute interest in the disease, it remains one which is rare. There have been about 150 cases reported. No one individual has seen more than a very few. Nor is the disease

one which is rare only because it is being overlooked; for even in pathologic institutes where the condition has been known for a long time, it is only rarely seen. At the Cook County Hospital in Chicago, for instance, in about 3,500 necropsies performed in the last three years there were seen three cases, one confined to the gall-bladder, the other two generalized.<sup>1</sup> At the Peter Bent Brigham Hospital in Boston two cases were found in 2,032 necropsies.<sup>2</sup>

Although periarteritis nodosa has been reported from nearly all parts of Europe, from England, and from many sections of North America, it is thought by some (Balo) that there is an area of greater frequency in central Europe, especially in Hungary. The disease has been described in dogs, calves, swine, and deer; nearly all these reports are from central Europe. A few times there has been an epidemic-like grouping of cases among these animals.

In man the disease has been described at all ages from three months to 78 years; most of the cases have occurred between the ages of 20 and 40. About four times as many males are affected as females.

There can be no doubt, judging from the observed tissue changes, that periarteritis nodosa is an infectious disease. On this all writers are agreed. The difference of opinion is as to whether it is a specific disease with a single etiologic agent or the unusual manifestation of one or of many infections. The early opinions that syphilis may have something to do with this condition may now be entirely disregarded, as there is no evidence to support this contention.

On several occasions streptococci have been isolated from the blood or tissues of patients with periarteritis nodosa and a few times animals inoculated with tissues obtained at necropsy have developed streptococcus infections. The disease itself, however, has not been reproduced with cultures of these organisms. The idea that it requires a special type of individual, perhaps an "allergic" one (Gruber) in order for these or other organisms to produce manifestations of this disease may, of course, be true; but at the present time it is only a conjecture incapable of proof or denial.

That periarteritis nodosa may be a special manifestation of the rheumatic diseases was first suggested by Aschoff, and has since been an

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attractive theory (Herlitz).<sup>3</sup> Histories of rheumatism, tonsillitis, and endocarditis have been found in many of the cases. The resemblance of the periarteritic nodule to the rheumatic nodule has been pointed out. The evidence is suggestive, but at the present time not conclusive.

Most recent writers lay stress upon the work of Harris and Friedrichs<sup>4</sup> who reported having reproduced the disease in rabbits by the inoculation of the filterable material obtained from the affected tissues of the human. Their work has never been confirmed; but it has never been disproved and it is still possible that periarteritis nodosa may be due to a filterable virus.

Studies of the youngest lesions in periarteritis nodosa indicate that the infective agent, whatever it may be, is brought to the site of the lesion with the blood. Thus in larger arteries the infection apparently starts about the vasa vasora, and in the very small ones, beneath the intima. The course of events which follows this initial lesion has been conveniently divided into four stages, which, however, pass insensibly one into the next. In the first or degenerative stage there is found an edema and later a necrosis of the media of the vessel. This is followed by the stage of acute inflammatory exudation. Neutrophil leukocytes, and less regularly lymphocytes, plasma cells, and eosinophil leukocytes, infiltrate the media and adventitia. This infiltration is often eccentric and produces a nodule along the course of the vessel. If there are numerous nodules in the same vessel, they are strung along the course of the vessel like so many beads. Grossly visible nodules are not necessarily present and in many cases only the microscope will disclose the typical changes. At the site of the periarteritic lesion the vessel usually becomes thrombosed. Late in this stage aneurysms may form along the course of the vessel.

The cellular exudate is gradually replaced by fibroblasts and vascular granulation tissue in the third (or granulation tissue) stage. The nodules about the vessels become larger, often grossly visible for the first time in this stage. Aneurysms are more frequent at this time than ever before. In the last, or healed stage, the only evidence of the previous vessel injury may be a very much thickened vessel with a narrow lumen

and a media largely replaced by scar tissue, often in an eccentric manner.

During the second and third stages one or more of the aneurysms may rupture, sometimes with an ensuing fatal hemorrhage. Such fatal ruptures have occurred in the kidneys, stomach and intestines, liver, gall-bladder, brain, lungs, into the pericardial sac, and in other locations.

It is important to remember that the above described stages apply only to an individual lesion and not to the disease as a whole; for lesions of various ages may be found in different organs or even in the same organ.

In most cases vessels in various parts of the body are involved. Occasionally only one organ or organ system is affected. This is especially true of the kidneys. The vessels most frequently involved in the order of frequency are: the renal arteries, 80 per cent.; the coronary arteries, 70 per cent.; the hepatic arteries, 35 per cent.; the arteries of the gastro-intestinal tract, 50 per cent.; the mesenteric arteries, 30 per cent.; the arteries of the muscles, 30 per cent.; the pancreatic arteries, 25 per cent.; the arteries of the peripheral nerves, 20 per cent.; the arteries of the brain, 8 per cent. The vessels of the skin and of the retina may sometimes be involved, giving rise to lesions which are pathognomic for periarteritis nodosa.

It is to be expected that when blood vessels as important as those involved in periarteritis nodosa are badly damaged, there will be serious consequences in the organs which they supply. And indeed a whole set of clinical signs and symptoms are due to these secondary effects on the organs, principally to infarctions and hemorrhages. In the kidneys, however, there are very frequent changes which cannot entirely be explained by injury to the larger vessels. Frequently there will here be found an acute or subacute nephritis; the glomerular changes and the degenerative phenomena in the tubules resemble those of any other nephritis. It is only upon examination of the larger vessels that the accompanying periarteritis is found. These patients usually die in uremia.

The healing of periarteritis lesions and of the accompanying infarcts can lead to marked atrophies with deep scarring of organs. Arkin<sup>5</sup> mentions contracted kidneys, hepar lobatum, myomalacia scars, adrenal atrophy, encephaloma-



lacia, muscle atrophy, and peripheral nerve degeneration as possible sequelae.

Considering the fact that periarteritis nodosa is an infection of the medium and smaller sized blood vessels, also taking into consideration the consequent numerous and varied pathologic changes, it is easy to see why such a mixed clinical picture presents itself. The onset in this disease may be acute, but more often is insidious. There are certain constitutional symptoms present, such as are common to an infectious process or suggestive of sepsis.

Usually the general condition of the patient is markedly affected as evidenced by fatigue, rapid loss of strength and weight, anorexia, and by rapidly increasing pallor. In 66 per cent. of cases fever is present, often accompanied by chills and drenching sweats. While some cases may be subfebrile, others may reach a temperature of 105°. A remittent type is not infrequently encountered, and afebrile periods are not uncommon. Irregular rises of temperature may correspond to the development of new foci of infection or to the flaring up of old ones. The pulse is disproportionately rapid and of poor quality, running from 90 to 140. A pulse of 100 to 130 without fever has been noted, and with a variable temperature, the pulse often remains around 120. In the active stage a leukocytosis of the polymorphonuclear type is present, which usually varies from 15 to 40 thousand with a displacement to the left. At times there is a marked eosinophilia. Lamb<sup>6</sup> reports a case with 51 per cent. and Strong<sup>7</sup> one with 79. There is a marked drop in the hemoglobin to 50 or 60 per cent. with a corresponding reduction in the number of erythrocytes. Kussmaul and Maier suggested the name of "chlorotic marasmus" as a term descriptive of the anemia. The blood pressure may be low or normal, and has been found to be high in some cases of severe kidney involvement. Generalized muscle and joint pains are common complaints.

In addition to the generalized manifestations of this disease, various other symptoms occur according to the location of the arterial involvement. Bennet and Levine<sup>2</sup> have described the following types: renal, cardiac, gastro-intestinal, neuromuscular, cerebral, and dermatologic. Symptoms may be more or less confined to any one of these types, or there may be various com-

binations which cause irregular clinical pictures most difficult of interpretation.

When the renal type predominates, the urine shows albumin, casts, and blood cells. Azotemia may be marked with all the clinical signs and symptoms of uremia present. Also hematuria with symptoms of kidney infarction may occur.

In the cardiac type there may exist a functional disturbance of heart activity. Apical systolic murmurs may be heard. Anginal attacks with symptoms of myocardial failure occur. These cases fail to respond to digitalis therapy. Intrapericardial hemorrhage has been reported by Vance and Graham.<sup>8</sup>

The gastro-intestinal or abdominal type presents one of the most interesting array of symptoms. Nearly all cases present some gastro-intestinal symptoms, but the most intriguing symptom complex is that of the acute surgical abdomen. In such cases we have pain, vomiting, tenderness, rigidity, fever, and leukocytosis. This group has led frequently to surgical interference. Cases have been operated on for gall-bladder disease, appendicitis, and viscus perforation only to reveal negative findings. Gruber<sup>9</sup> reports a cholecystectomy for supposed gall-bladder disease in which microscopic sections showed involvement of the cystic artery; Klotz,<sup>10</sup> a case with a supposed suppurative abdominal condition.

Various explanations of these abdominal symptoms have been advanced. Gohbrandt<sup>11</sup> thinks they are due to vasomotor spasm. Kroetz<sup>12</sup> believes the colic is due primarily to vessel spasm of the diseased arteries and secondarily to slight inflammatory irritation of the peritoneum. Actually existing surgical conditions have been known to complicate the disease, such as perforation of an ulcer due to infarction or to hemorrhage from a ruptured aneurysm. It is well to remember that acute abdominal symptoms usually occur in association with other symptoms of the disease. Usually the liver and spleen are not palpably enlarged, but tenderness over the liver may exist; and anorexia, vomiting, diarrhea, melena, and jaundice may be present.

The neuromuscular group is characterized by symptoms of a polyneuritis which may affect the median, radial, tibial, or peroneal nerves. According to Herlitz<sup>3</sup> a flaccid paralysis of the extremities occurs in 33 per cent. of cases. In such cases the pain is usually intense with vari-

ous paresthesias. Distinct atrophy occurs in one-third of the cases. Muscle pains as in polymyositis are a frequent complaint and are especially localized and most intense in the lower extremities. Symptoms of a polyarthritis also are noted. The great frequency of a polyneuritis as the first and predominating symptom is noteworthy.

The cerebral cases show symptoms due to cranial nerve lesions, delirium, epileptiform convulsions, and varying degrees of coma. Kroetz states that periarteritis nodosa of the brain with aneurysms of the larger arteries led in one case to headache, vertigo, and vomiting; and in another, to headaches and weakness of vision with negative ophthalmoscopic findings. Dickson<sup>13</sup> reported a case with symptoms of an acute meningitis but with a negative spinal fluid. Bennet and Levine<sup>2</sup> published the report of a case showing clinical evidence of a meningitis with a marked elevation of polymorphonuclear leukocytes in the spinal fluid but with negative pathologic evidence of meningitis. When arriving at a diagnosis, brain symptoms due to occluded or ruptured arteries should be considered. Baló<sup>14</sup> cites a case in which uncertain clinical symptoms led to the diagnosis of brain tumor. Cerebral symptoms may be caused by an accompanying uremia.

Cases with dermatologic symptoms alone are rare, but various skin manifestations are common in connection with the different types. The most characteristic lesion is the presence of nodules along the course of the superficial arteries or in the subcutaneous tissue. According to Kroetz<sup>12</sup> these vary in size from a pea to a hazelnut and there may be as many as 50 of them. They are present in 20 per cent. of cases. They may be soft and later become hard. Sometimes they are sensitive to pressure. Rarely pulsation can be demonstrated. Punctate hemorrhages occur in about 17 per cent. of cases. While these usually appear early, they may return in recurrent crops. Small or large hemorrhagic areas due to ruptured aneurysms may be found. Other skin lesions noted are exanthemata, urticaria, erythema nodosa, and, as in our case, a pustular rash. Carr<sup>15</sup> reports a clinically diagnosed case with Raynaud's symptom complex.

The diagnosis of periarteritis nodosa is rarely

made during life, only seven per cent. of cases having been diagnosed antemortem. A positive diagnosis can be made histologically from an excised skin nodule. According to Matthes,<sup>16</sup> pulsation in the skin nodes is pathognomonic; and, so far as is known, multiple aneurysms do not appear in the superficial arteries in any other disease. Diagnosis has been made from the histologic examination of nodules removed during operative interference as in cases reported by Gruber<sup>9</sup> and others. The presence of characteristic nodules along the course of mesenteric vessels may lead to the correct diagnosis. Surgeons should search carefully for such characteristic lesions when an apparently acute surgical abdomen is opened with negative findings. The ophthalmologist may give a clue to diagnosis by finding nodules or localized thickenings on the retinal vessels.

Certain symptom complexes strongly suggest periarteritis nodosa and may be of diagnostic aid. Meyer<sup>17</sup> in 1921 suggested the following triad: chlorotic marasmus, polyneuritis and polymyositis, and gastro-intestinal symptoms. Kroetz suggests the combination of acute subcutaneous nodules, gastro-intestinal symptoms, peripheral neuritis, and nephritis. The picture of a generalized sepsis may predominate and lead to the most common diagnostic error. One important point to remember in this connection is that a flaccid paralysis does not belong to the picture of sepsis except sometimes in puerperal sepsis; and, therefore, when a flaccid paralysis occurs in a polyneuritis, accompanied by an unexplainable sepsis, we should always consider periarteritis nodosa.

The prognosis is very unfavorable. Kroetz states that 92 per cent. of patients thus afflicted die, the duration of life being ten days to two years. The average duration in 58 cases reported by Gruber was four and seven-tenths months. That the disease is capable of spontaneous healing has been shown definitely in two cases; one reported by Von Haun<sup>18</sup> and one by Spiro.<sup>19</sup> Gruber is skeptical of cases of periarteritis nodosa reported as recoveries, while other authors remind us of late degenerations occurring in the heart and kidneys together with rupture of aneurysms long after apparent recovery has taken place.

There is no specific treatment for this disease.



Symptomatic measures of relief may be used. Carling and Hicks<sup>28</sup> reported a recovery after intravenous administration of an arsenical.

Report of Case: Male, age 47, married; occupation, fisherman; entered St. Francis Hospital on June 15, 1931. Family history negative. Past illnesses: Pneumonia, age 16; one attack of tonsillitis, age 30; lues denied.

Present illness began six weeks before admittance to hospital. Fatigue, especially in the morning, was first noticed. This was soon followed by anorexia, lumbar pain, nausea, and occasional vomiting. Frontal and occipital headache existed. One week prior to admittance to hospital patient had noticed hematuria and was sent to the urologic service of Dr. W. H. Holbrook. Cystoscopic and roentgenologic examinations demonstrated bilateral renal hematuria with no evidence of tumor or calculus. On account of negative urologic findings the case was transferred to the medical service, June 20, 1931. While still on the urologic service, the patient complained of rather severe pains in the lower extremities with general muscular tenderness, nausea, vomiting, low abdominal pain, and profuse perspiration. On admittance Dr. Holbrook had noted numerous petechiae on the lower extremities.

Initial examination on the medical service showed an obese individual weighing about 245 pounds, comparatively at ease, but apparently very ill. There was pallor, normal facies, and moist skin. Pupils were equal, reacted to light and accommodation; eye movements normal with no disturbances of vision. The tongue was broad, pale, heavily coated, and showed indentation of teeth. A mild gingivitis was present; tonsils appeared normal; there were no palpable cervical glands, no enlargement of thyroid, and no venous distension. The lungs were negative; the heart tones faint; and on account of obesity, the heart borders could not be definitely outlined. There was slight tenderness in the right hypochondrium, liver and spleen not palpable. The peripheral arteries showed no evidence of sclerosis. The skin showed fading petechiae on the lower extremities. The hands were dry with a few palmar nodules varying in size from a pin head to a pea. These lesions were tender and faded upon pressure. Examination of genitalia and rectum was negative.

During his subsequent illness, up to July 10, the patient showed the following symptoms: The temperature for the most part was normal. There were occasional rises to 100°. The pulse varied from 76 to 96, respirations from 18 to 23; blood pressure, systolic 140 to 150, diastolic 76 to 98. Perspiration was profuse and there were crops of petechiae upon legs and a pustular rash on chest and face. There was frequent and profuse nosebleed, and frothy bright red expectoration. The patient suffered from marked anorexia, frequent nausea and vomiting with occasional hematemesis. There was epigastric pain and diffuse abdominal pain with tenderness. Hiccough and restlessness also were present.

The laboratory findings were as follows: Urine ex-

amination revealed a large amount of albumin with an enormous number of red blood cells and 30 to 40 pus cells to a microscopic field. Urinary output in twenty-four hours varied from 180 to 720 c.c. On June 6 the patient had 75 per cent. hemoglobin, 3,320,000 red cells, 8,800 leukocytes, and 72,000 platelets. The differential count showed 80 per cent. polymorphonuclears and 20 per cent. lymphocytes—5 per cent. large and 15 per cent. small. Blood chemistry estimation gave the following results: Urea nitrogen, 50 mg.; sugar, 129 mg.; creatinine, 5.7 mg., and calcium 6.6 mg. (per 100 c.c. of blood). On June 18 blood urea nitrogen had advanced to 65 mg. and creatinine to 18.9 mg. By July 7 the hemoglobin percentage had dropped to 45 per cent., the red cells to 2,340,000, the leukocyte count remaining normal.

On July 9 there was dyspnea, also severe precordial pain. Patient vomited coffee ground contents. On July 10 precordial pain continued, respiration 30 and shallow, cold sweat, weak thready rapid pulse; Exitus lethalis.

Diagnosis: Subacute hemorrhagic nephritis, uremia, secondary hemorrhagic diathesis.

Necropsy: The body was that of a well developed white man. It had been embalmed. The only noteworthy external findings were the skin lesions mentioned above.

The principal findings were in the heart, kidneys, and gall-bladder. The heart was slightly enlarged, most of the enlargement being due to dilatation of all the chambers. The left ventricle was slightly hypertrophied. The only valvular pathology was on the mitral valve. On the auricular surface of this valve there was a purplish-blue nodule one millimeter in diameter raised one millimeter above the surface. About a centimeter away, and about two millimeters from the free margin of the valve, there was a flatter hemorrhagic area one by two millimeters. These lesions were found microscopically to be aneurysmically dilated small arteries which pushed up the endocardium. The lumen was made up of coagulated blood, while the wall was thin and in places infiltrated with macrophages. Other small arteries beneath the endocardium were apparently normal. The coronary arteries were dilated and contained a few small yellow plaques.

Both kidneys were slightly enlarged. The capsules stripped with some difficulty, and the surfaces were irregular due to the presence of several deep depressions which extended through the cortex. When these areas were cut, strands of white tissue were seen reaching into the medulla. The lesions resembled old scarred infarcts. The cortex was wide (6 mm.) and yellowish, with tiny red dots scattered uniformly through it; it was not well differentiated from the medulla. The renal pelves contained a small amount of slightly cloudy fluid. In the right pelvis there was a bluish nodule one and five-tenths millimeters in diameter which projected one millimeter into the lumen; it was identical in appearance with the one seen on the mitral valve. Histologically two sets of changes were to be seen. The first was that of an ordinary subacute nephritis, with crescentic layers of fusiform or spindle-shaped

cells partially or even completely replacing the glomeruli, and marked degenerative phenomena in the tubules. In addition to this there were acute changes in the medium sized arteries, especially the interlobular and arcuate arteries. Some of these showed simply a necrosis of the wall, especially of the media, while others showed in addition a perivascular accumulation of polymorphonuclear neutrophil leukocytes and a few lymphocytes and plasma cells. The deeply scarred areas were made up of entirely obliterated glomeruli and cystically dilated tubules, with marked increase in interstitial connective tissue. The vessels in these regions were markedly thickened and sometimes the thickening was decidedly eccentric; the lumens were narrowed.

The gall-bladder was slightly distended and filled with golden brown bile. There were no stones. The mucosa was slightly trabeculated and through it there were seen bluish nodules, some just beneath the mucosa, others deeper in the wall. When these were cut across they were found to be round or oval, deep red, and resembled clotted blood. Eight such lesions were found in the gall-bladder, and they varied in size from two to four millimeters. Microscopically these lesions represented greatly dilated blood vessels filled with recently coagulated or partly organized thrombi. The walls of the vessels were nearly all edematous, and many of them were infiltrated with lymphocytes and plasma cells, which usually separated the muscle fibers of the media. Only one lesion showed a considerable perivascular infiltration like that in the kidneys.

There were no other findings of note. Neither the liver nor the spleen was enlarged. The brain and peripheral nerves were not examined.

**Summary:** A brief review of the etiology, pathology, symptomatology, and diagnosis of periarteritis nodosa is presented. In addition, a case is reported with the following principal features:

1. The clinical course of the disease was that of the nephritic type, with uremia.

2. The marked hemorrhagic diathesis with thrombocytopenia, evidenced by severe epistaxis, hemoptysis, hematemesis, and petechiae, was secondary to the uremia. The early symptom of marked hematuria with gross blood was probably due to the aneurysms in the renal pelvis, but may possibly have been part of the hemorrhagic diathesis.

3. To the other skin lesions previously described we now add a pustular eruption. The patient had also the tender, red nodules which have often been mentioned.

4. An unusual pathologic finding was the presence of aneurysms on the mitral valve leaflets.

5. In retrospect it seems that the presence of a subacute nephritis with uremia in a patient with abdominal symptoms, severe pains in the lower extremities, and with nodules in the skin, might have led to a possible diagnosis of periarteritis nodosa, had the condition been called to mind.

## BIBLIOGRAPHY

1. Personal Communication from Drs. R. H. Jaffé and S. R. Rosenthal.
2. Bennett, G. A., and Levine, S. A.: Two Cases of Periarteritis Nodosa. One with Unusual Manifestations. *Am. Jour. Med. Sc.*, 177:853, 1929.
3. Herlitz, G.: Klinische Beiträge zur Kenntnis der Periarteritis Nodosa. *Acta Paediatrica*, 10:105, 1930.
4. Harris, W. H., and Friedrichs, A. V.: Periarteritis Nodosa with a Classification of the Pathology. *Jour. Med. Res.*, 43:285, 1922. The Experimental Production of Periarteritis Nodosa in the Rabbit with a Consideration of the Specific Causal Excitant. *Jour. Exper. Med.*, 36:219, 1922. Harris, W. H.: Etiology and Pathology of Periarteritis Nodosa. *South. Med. Jour.*, 19:426, 1926.
5. Arkin, A.: A Clinical and Pathological Study of Periarteritis Nodosa. *Am. Jour. Path.*, 6:401, 1930.
6. Lamb, A. R.: Periarteritis Nodosa—A Clinical and Pathological Review of the Disease with a Report of Two Cases. *Arch. Int. Med.*, 14:481, 1914.
7. Strong, G. F.: Periarteritis Nodosa with the Report of a Case. *Can. Med. Assn. Jour.*, 19:534, 1928.
8. Vance, B. M. and Graham, J. E.: Periarteritis Nodosa Complicated by Fatal Intrapericardial Hemorrhage. *Arch. Path.*, 12:521, 1931.
9. Gruber, G. B.: Zur Frage der Periarteritis Nodosa mit besonderer Berücksichtigung der Gallenblasen—und nieren—Beteiligung. *Virchow's Arch. f. path. Anat.*, 258:441, 1925.
10. Klotz, O.: Periarteritis Nodosa. *Jour. Med. Res.*, 37:1, 1917.
11. Gohrbandt, P.: The Importance of Periarteritis for Surgery. *Arch. f. klin. Chir.* 145:623, 1927.
12. Kroetz, C.: Zur Klinik der Periarteritis Nodosa. *Deutsch. Arch. f. klin. Med.*, 135:311, 1921.
13. Dickson: Polyarteritis acuta nodosa and periarteritis nodosa. *Jour. Path. and Bacteriol.*, 12:31, 1908.
14. Balo, J.: Ueber eine Häufung von periarteritis nodosa Fällen, nebst Beiträgen zur Polyneuritis infolge von Periarteritis Nodosa. *Virchow's Arch. f. path. Anat.*, 259:773, 1926.
15. Carr, J. G.: Periarteritis Nodosa. *Med. Clin. N. Amer.*, 13:1121, 1930.
16. Matthes: Quoted by Herlitz, Reference 3.
17. Meyer, P. S.: Ueber die klinische Erkenntnis der Periarteritis nodosa und ihre pathologisch—anatomische Grundlagen. *Berl. klin. Wchnschr.*, 58:473, 1921.
18. Von Haun: Patho-histologische und experimentelle Untersuchungen über Periarteritis Nodosa. *Virchow's Arch. f. path. Anat.*, 227:90, 1920.
19. Spiro, P.: Zur Kenntnis des Wesens der Periarteritis Nodosa. *Virchow's Arch. f. path. Anat.*, 227:1, 1919.
20. Carling, E. R., and Hicks, J. A. B.: A Case of Periarteritis Nodosa, Accidently Recognized during Life. *Lancet*, 1:1001, 1923.

## DISCUSSION

Dr. James G. Carr, Chicago: Mr. Chairman and Members of the Section: A few years ago Dr. Parker presented an excellent review of a subject that was new at that time—agranulocytosis. I feel that both he and Dr. Bohrod are entitled this morning to congratulation on this excellent presentation of another rare disease, a disease which does not bid fair to become so well known and perhaps to be treated so success-



fully as has agranulocytosis in the four or five years which have elapsed since Dr. Parker's review.

I want to bear on only two points—first of all, the etiology of periarthritis nodosa.

Thus far we have no reason to believe that it is due to an organism which is specific in nature. Apparently the disease is one in which the main symptoms and the physical findings and the blood findings, aside from the impossibility of demonstrating positive cultures, are identical with the usual course of a sepsis. In the case we reported we felt that we were dealing with a general sepsis which manifested itself rather characteristically in widespread involvement of the extremities and the internal organs by a vascular disease; in other words, sepsis plus the signs of widespread vascular disease ought to excite in one's mind the possibility of a periarthritis nodosa.

The disease occurs in the lower animals. It has been found both in domestic and in wild animals. The disease probably does terminate in healing in certain cases. One of the German authors, upon whose work we happened when we were studying this subject, described two cases which he defined as periarthritis nodosa obsoleta in individuals who had died, one of them I think from a rupture of a periartheritic aneurism in the brain a long time after subsidence of the original symptoms and after the patient had been treated for sometime for syphilis because a 4+ Wassermann was found. Elsewhere in the body the disease was healed and the aneurism did not show at that time an active process.

Gruber, in a most extensive monograph on the subject, came to the conclusion that it was due probably—he specifically stated that this supposition was an hypothesis—to a non-specific infection in a hyperergic individual which, after all, is not very illuminating when one is hoping to find the specific cause of this particular disease. It seems to me that thus far the evidence is in favor of a non-specific infection and that we have to fall back on our conceptions of constitution to explain why it only occurs once in 2,000, 3,000 or 4,000 cases of illness, or even less than that. In explanation of the rarity of peri-arthritis nodosa we have recourse to this hypothesis of constitution and individual reaction to infection.

The case under our care was characterized early in its course by disease of the extremities. The disease ran a fairly acute course. So far as we could determine our patient was sick only about six weeks, some thirty-eight or thirty-nine days as it was dated on our chart from the day on which he said he was first taken sick with pain in both legs. This pain continued. It could be relieved by putting the feet and legs in cold water. The pain was aggravated by allowing the legs to hang. At the time of admission to the hospital there was evidence of disease of the right foot, and eventually there developed gangrene of two toes and very definite evidence of beginning gangrene involving the foot. Later on in the disease he developed pain and stiffness in the right arm and numbness and pallor of one or two of the fingers on the right hand, and there was also some

distress in the left arm and pain in both legs. The pain was not confined to the leg in which the vascular disturbances were so well marked.

Only a day or two before his death one of our attending men at the County Hospital—I mention this not as a reflection but rather for emphasis—a well-trained neurologist, diagnosed this as probably a multiple neuritis. In view of the extensive vascular disturbance with the sepsis, the vascular disturbance not being accounted for satisfactorily on the basis of any known form of vascular disease, we were fortunate enough to guess at periarthritis nodosa. The second point to which I would call your attention is the frequent occurrence of peripheral nervous symptoms.

Wohlwill has proposed, after a review of the literature, I believe it is in the closing statement of his conclusions in regard to neuritic manifestations, an explanation which is most acceptable of all those we found in the literature. He maintains that there are three ways whereby the nerves may be involved; first of all, purely as a toxic symptom in the course of a sepsis; secondly, arterial change in the nerves with slight parenchymatous change, and, thirdly, marked periartheritic changes in the nerves with which there is extensive destruction of the nervous tissue. In our case there were no periartheritic changes in the nerves. These are the considerations which interested us most.

The anterior tibial artery, and particularly the branches thereof, in the right foot showed marked changes and very definite closure of the vessels leading to the parts which showed the gangrene.

Milton G. Bohrd, Peoria: The discussion of the etiology of this disease has been marked by many opinions, without sufficient evidence for most of them. You will perhaps understand this when you realize that in a collection of the reported cases there are frequently found two to four papers for one case instead of, as usual, one paper for several cases.

Whether or not this disease is a peculiar manifestation of many different infections or a specific infectious disease is still very much in dispute. There are some findings in comparative pathology that indicate it might be a specific disease. For instance, it has been found in animals to occur in what seems to be an epidemic form. In addition, it has been pointed out by Balo that there seems to be a concentration of cases, both human and animal, in Central Europe. Of course, all this could be explained by the fact that these animals are constituted very much like one another and that they, as well as the humans living in Central Europe, are different from those in other parts of the world and therefore will react differently to various types of infections.

Aschoff at one time pointed out the similarities of this disease to certain rheumatic manifestations, and rheumatism is considered an important etiologic factor by some authors, especially some of the Scandinavians.

Pathologically, there is one finding that is unique in our case and probably needs a little comment, because several people have already asked me "How does it happen that you can get an aneurysm on the heart

valve when the heart valves do not have blood vessels?" I am sure the same question has occurred to some of you. Some time ago, Louis Gross of New York, in his injection experiments on the coronary arteries and the vessels of the heart, found that about 10 per cent. of all the valves were vascularized. There was for a time an ingenious theory that subacute bacterial endocarditis might have this peculiar manifestation because it occurred to people with these vascularized valves. At any rate, in our case we were able to find, in addition to the aneurysm, perfectly normal arteries in the valves. This case demonstrates that peri-arteritis nodosa affects vessels wherever they occur, whether these vessels are in usual or unusual locations.

### PASTEURIZED vs. RAW MILK\*

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Present interest in pasteurization is largely due to the recognized importance of milk as a food.

Following the studies of Sherman and others, the medical fraternity and a steadily increasing proportion of the public agree that "Every child should consume at least a quart of milk per day."

The slowness with which this dictum is being translated into feeding practice is due in part to custom which changes slowly.

This hesitancy to use the desired amount of milk in feeding children is also influenced by the feeling that milk is an expensive element in the diet. Since food solids in dairy products are cheaper than those from any other animal source, parents should be instructed with regard to the economics of diet.

Perhaps the largest stumbling block in bringing about the use of the proper amount of milk by children is the tendency on the part of the children to adjust their diet to that of their parents.

The findings of Sherman and others that adults should use at least a pint and better a quart of milk per day in order to maintain their best physical condition seems to have been largely overlooked. Not only is there need for a better appreciation of the value of milk to the adult but the more regular use of milk by adults would go far toward stimulating children to consume their prescribed quota.

\*Read before Section on Public Health and Hygiene, at Springfield, May 18, 1932.

### PUBLIC HEALTH DANGER CONNECTED WITH MILK

During recent years the United States Public Health Service has furnished annual reports of the epidemics officially announced by state and municipal health authorities during the preceding year. This list for the thirteen years, 1918-1930, includes 439 epidemics involving 18,777 cases and 719 deaths.

We may compare this with the death and injury which follows in the wake of the automobile and conclude that it is a matter of no great importance. On the other hand, we may look at these epidemics as about 1,500 cases of serious illness per year which might just as well have been avoided had simple and workable precautions been taken.

It is well to keep in mind that this record of epidemics spread through milk is by no means all of the damage done by disease germs spread through this avenue.

Within recent years there has been the recognition of a rapidly increasing number of cases of undulant fever likewise spread through infected milk. The number of these cases in 1930 amounted to 1,450, with a strong probability that we are not yet getting anywhere near the total number of cases in the country.

Tuberculosis does not produce epidemics, and it has long been held that at least ten per cent. of the tuberculosis of children and a smaller proportion of the tuberculosis of adults is due to infection conveyed through milk.

We might just as well frankly recognize that while milk is one of our most important food substances, the fact remains that in the use of this milk there is being spread today in our country a large amount of sickness, misery and death. It is, accordingly, plainly our problem to consider how this spread of disease through milk may be stopped.

*Importance of Pasteurization.* In the period immediately following the World War, Public Health Departments were more or less disorganized, and the discovering of epidemics and reporting their causes was for a time rather imperfectly carried out. During recent years there have been reported through official channels approximately fifty milk-borne epidemics per year in the United States.

Particularly during the past ten years there



has been a rapid increase in the proportion of milk which has been pasteurized. Today there are no less than 26 cities having ordinances requiring the pasteurization of their entire milk supply. There is also a list of at least 45 cities requiring all of their milk supply except certified milk to be properly pasteurized. In an even larger number of cities the proportion of pasteurized milk is 90 per cent. or more without there being any legal requirements to this end. It is probable that rather more than half of the milk in the cities of the United States has been pasteurized for some years.

If we return to these epidemics which have been reported by the U. S. Public Health Service, it will be noted that out of the, roughly, 50 epidemics a year so reported, an average of less than one per year is attributed to milk which has been pasteurized and the remaining epidemics are caused by raw milk.

If we assume for the sake of comparison, that the amount of raw and of pasteurized milk distributed in the cities of the country is equal, these statistics suggest the chances of contracting disease through raw milk is, roughly, fifty times as great as that of contracting it through pasteurized milk.

When we examine carefully the instances where pasteurized milk is connected with epidemics, it will be found that in each of these cases it is an instance of reinfection of the pasteurized product. A typical example occurred in Massachusetts in 1928 where the milk was produced and pasteurized on a State farm and transferred in cans to a State Institution where it was distributed by an individual who was later found to be in the early stages of the disease. The epidemic of dysentery which resulted could not by any stretch of the imagination be traced to any failure of the pasteurization, but was plainly the result of contamination after pasteurization and before reaching the consumer.

It seems entirely clear that in the instances where milk pasteurized by the holder system has been concerned with the spread of epidemics, the failure has lain not in the process of pasteurization, but in the processes of supervision, which failed to protect properly the milk between the pasteurizer and the consumer. The surprisingly small proportion of these cases which have occurred in the handling of vast amounts of milk

in thousands of cities, speaks well for the health supervision of milk supplies.

In this connection it is noteworthy that since the supervision of pasteurized milk in Illinois, outside of Chicago, was placed in the hands of the State Department of Health, no epidemic spread through pasteurized milk has occurred in Illinois.

As has been pointed out in the resolution adopted by the American Public Health Association "pasteurization of milk has proven of inestimable value in the prevention of tuberculosis of children as well as other diseases."

*Additional Advantages of Pasteurization.* Not only does pasteurization, on the average, apparently increase the safety of milk supplies by approximately fifty fold, but it also has some advantages in the matter of prolonging the keeping quality of the milk. Pasteurized milk keeps sweet longer than does the raw milk before pasteurization. This has often been much overrated, but where the samples of the same milk, raw and pasteurized, are exposed to a temperature of 70 degrees, which is a common room temperature, the increase in keeping quality of the milk as the result of pasteurization is rarely as much as twelve hours. If the raw milk before pasteurization had a poor keeping quality, the improved keeping quality as the result of pasteurization may be less than four hours.

*Softening of the Curd in the Stomach.* During recent years a good deal of attention has been given to the type of milk curd formed in the stomach of the individual. It is a well-known fact that the human milk curdles in such a soft curd that the movement of the stomach easily breaks up the mass and mixes it with the digestive juices. Cows' milk, on the other hand, tends to curdle in rather solid masses. This peculiarity makes cows' milk especially adapted to cheese making, but causes it to be something of a problem in the stomachs of delicate infants.

There is at present widespread interest in the use of milk from certain cows whose product forms soft curd in the stomach. In this connection it is well to remember that boiling milk before feeding to infants has long been an established practice. Part of the virtue in this practice arises from the resulting safety of the milk, but some of the good results observed also are due to the softer curd which follows the use of

such boiled milk. It is also well to remember that the more satisfactory results which have followed the use of pasteurized milk in infant feeding are also due in part to the softening of the curd which has followed this milder heat treatment of the milk.

*Popularity of Pasteurization.* The U. S. Public Health Service has long been committed to the pasteurization of milk supplies. Practically all of the State Departments of Health have likewise taken the same stand. Many of them have gone so far as to state that there is no such thing as a safe raw milk.

Practically without exception, the Class A medical schools in their teaching now stress the importance of pasteurization as a protection to the public health.

In 1922 the International Association of Dairy and Milk Inspectors adopted resolutions endorsing pasteurization and in 1924 their example was followed by the American Public Health Association.

The municipal departments of health of many of our cities are strongly in favor of pasteurization. The Chicago Department has been in that category since the memorable days of Dr. Evans. There are approximately 100 cities in the United States where pasteurization of the local milk supply is practically complete. At least 40 million and probably 50 million people in the United States are using pasteurized milk.

The movement toward pasteurization is so general that in a number of cities the sale of pasteurized certified milk is becoming common. In Cincinnati, one of the early centers of the certified milk movement, only pasteurized certified milk is now being distributed. Practically the same situation obtains in the neighboring city of Dayton. It is undoubtedly only a question of a short time when only pasteurized certified milk will be sold in Detroit.

*Opposition to Pasteurization.* It may seem odd that notwithstanding the almost unanimous approval of pasteurization by those who are in the best position to judge regarding its merits there is opposition to this process.

Part of this opposition is inherent in human nature as is well illustrated in a closely similar process, that of tuberculin testing of cattle. One might expect that all good citizens would unite in support of any movement which aimed to pro-

vide a better, safer milk supply, but in many cases misguided zeal has led to fierce opposition.

In the case of pasteurization much of the opposition has been based upon the tendency to cling to old customs. Practically all of us used raw milk during our youth and we were slow to see the importance of changing to the pasteurized product. In the northern and eastern part of the country, where pasteurized milk has been common for more than a generation there is little opposition to its use. However, in the south and southwest where it has been more recently introduced it meets much objection. Likewise in smaller places where it is being introduced there is a considerable list of objections which will be raised against it. Perhaps it will be helpful to consider briefly some of these objections.

*Monopoly.* This cry is always raised when a pasteurization ordinance is proposed. The object of a monopoly is to control commercial operations with the object of raising price. While such an ordinance puts raw milk distributors out of business, experience shows that on the average it creates about a quarter as many new pasteurizing plants so that control of the business is not attained. Close contact with the milk situation during many years has not located an instance where the passage of a pasteurization ordinance was followed by an increase in the retail price of milk. Accordingly as a monopoly move a pasteurization ordinance uniformly fails.

*Taste.* One frequently hears of the irate individual who cannot tolerate the taste of pasteurized milk.

There are certain feed flavors which are largely removed during the process of pasteurization but where one makes a comparison between a really fine raw milk and the same milk properly pasteurized repeated tests on a large scale have demonstrated that the individual cannot distinguish by the sense of taste between raw and pasteurized milk.

Where pasteurized milk is being introduced in a city it is rather common practice to use up the supply of raw caps which may be on hand. During this period no one notices that the milk is pasteurized but as soon as new caps are used bearing the word "pasteurized," some of the customers insist that they cannot tolerate the cooked flavor.



In practically every city where raw and pasteurized milk are sold the smaller raw milk distributors, when they need more milk get it from the pasteurizing plant, change the caps and deliver it as raw milk. There is no case on record where their customers complained of any cooked taste.

*Pasteurized Milk Does Not Sour.* One of the most widespread notions is that pasteurized milk does not sour and that the use of old, decomposed, pasteurized milk may lead to unfortunate results especially with children.

Some fifteen years ago it was demonstrated by the Department of Agriculture at Washington that the process of pasteurization as it is practiced at present actually killed off a larger proportion of non-acid forming germs so that the pasteurized milk not only sours readily but sours with an agreeable acid flavor.

All that is needed to disabuse one's mind of the idea that pasteurized milk will not sour is to hold some of it at 70°F. for a little more than a day and note the result. A good quality pasteurized milk should remain sweet and in satisfactory condition at 70 degrees for 24 hours after delivery to the consumer but it will quite uniformly sour before 48 hours at that temperature. The resulting flavor is almost invariably a pleasant acid one. Those who are fond of creamed buttermilk can provide an excellent supply of this material by thorough shaking of bottles of pasteurized milk which have been allowed to sour spontaneously at about 70°F.

*Pasteurization Devised to Cover Up Effects of Careless Handling.* This criticism has been made since the beginning of the agitation for pasteurized milk. I have been looking for an instance where this criticism can be justly applied and have not found a single one during the past twenty-five years of close contact with the dairy industry.

It is a matter of common knowledge that the pasteurizing milk dealers have long been the leading factors pioneering improvements in milk production and handling.

Somewhat recently an extensive survey of milk conditions was made by the State Department of Health of New York and as the result of that critical examination of the milk supply Deputy Commissioner Paul B. Brooks commented upon the fact that the raw milk coming to the pas-

teurizing plants in that State was of better quality than the milk which was being sold raw in the same markets.

*Pasteurized Milk for Feeding Children.* Attention has already been called to the fact that pasteurized milk produces a softer curd in the stomach of the child. As the result children thrive slightly better on pasteurized milk than on raw where large numbers of them have been handled under strictly comparable conditions.

In the early days of pasteurized milk, before the development of a knowledge of vitamins, there was some difficulty in connection with the feeding of pasteurized milk to children. However, since the appreciation of the limitations of cow's milk in the matter of vitamins C and D and the exercise of care in supplying these from other sources, pasteurized milk has been found quite satisfactory for infant feeding.

#### CONCLUSIONS

It is probably true that pasteurization reduces somewhat the vitamin C content of cow's milk, though even here there is not entire agreement among the students of this problem. This reduction is of slight moment since cow's milk is so deficient in vitamin C that this vitamin should regularly be supplied from other sources.

The dangers connected with the use of raw milk are serious and public health workers are practically unanimous in the conclusion that this danger can be best met by proper pasteurization. The experience of many cities on a large scale shows the wisdom of this conclusion.

Pasteurization has the added advantages of slightly improving the keeping quality of the milk and of softening the curd formed in the stomach, but the outstanding reason for its use is the safety which this process adds to the milk supply.

#### DISCUSSION

Dr. Ailes: I would like to say that Dr. Harding was for ten years connected with the University of Illinois, having charge of dairying. He knows more about the production, processing and marketing of milk, I guess, than any other man in the Central West, if not in the whole country, and we are fortunate in having Dr. Harding talk to us.

We tried to get a champion for raw milk. There is considerable sentiment among physicians and the public in favor of raw milk. And recently I have noticed considerable renewed public interest through newspaper and magazine articles. I therefore thought this would be a good topic to discuss at this meeting. Dr. Harding

originally was to talk on the "Production, Processing and Pasteurization of Milk," but I really could not find a champion for raw milk, so I wrote Dr. Harding and asked him if he would make his paper read "Pasteurization vs. Raw Milk," which he has kindly done.

Dr. Isaac D. Rawlings, Chicago: In 1915 the typhoid fever high point rate was about 5. I prophesied that it would be a long time before we reduced it. In 1916, by promulgation, Dr. Robertson, Commissioner of Health, required pasteurization of all milk in Chicago and our rate dropped immediately way down, so that our experience bears out very well what Dr. Koehler has said, that the typhoid fever cases can be still further reduced by pasteurization. Now the rate in Chicago is 0.4 for each 100,000 of our population.

Dr. Harding, in closing: The point of relation of pasteurization to reduction in cases of diarrheal diseases of children is well taken. A couple of generations since outbreaks of such troubles were expected during hot weather, particularly during July and August, and we were rarely disappointed.

With the coming of pasteurization of milk supplies these outbreaks of intestinal upsets of children have steadily decreased until they are practically unknown in cities where the bulk of the milk is pasteurized.

Earlier it was held that these disturbances were due to the presence in the milk of large numbers of bacteria. Later, the favorable results from lactic acid milk have shown that it was not merely a matter of abundance of bacterial life.

Gradually, there has been developed knowledge of a half dozen special forms of bacteria which can cause diarrhea in children. Evidently the abundance of diarrheal diseases in connection with the use of raw milk was due to the presence of some of these special bacteria in such raw milk. Pasteurization evidently destroys these diarrheal bacteria and prevents this type of disease among children.

This reduction in diseases aside from epidemics in connection with pasteurization of milk is quite similar to the improvement noted when water supplies are protected. It was long ago pointed out that protection of the water supply not only reduced the cases of typhoid in the community but it also prevented at least an equal number of cases of other diseases.

The extension of pasteurization is now very rapid and milk supplies are much safer year by year. There are always a few individuals who oppose any progress and since it is difficult to reduce all of the improvements in health to statistical form let us be content to claim only about seventy-five per cent. of the improvements which are actually being made. In this way we will not unduly irritate the opposition and will not provide them with ammunition. Pasteurization of milk supplies has become the orthodox thing among health workers. The U. S. Public Health Service and all State Departments of Health are strongly committed to it, as well as the health departments in practically all progressive cities. The conservatism of age naturally opposes progress and we can well afford to treat kindly those who for any reason do not fully appreciate the great benefits which follow pasteurization of city milk supplies.

## CONGENITAL SYPHILIS\*

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The terms congenital and hereditary syphilis are frequently used synonymously, but a disease due to an infection cannot in the true sense of the term be hereditary. Heredity implies some peculiar or characteristic inherent in the germ cell and appearing in one generation after another. Syphilis does not conform to this law. While there are some reported examples of transmission even to the third generation,<sup>1</sup> it is a pure accident of environment that the child becomes infected in utero.

Intimately associated with the question of nomenclature is our conception of the mode of infection of the fetus. Since the introduction of the Wassermann reaction it was noted by many observers that women who bore syphilitic children and have no evident signs of syphilis, give a positive reaction in 75 to 85 per cent. of cases, and further investigation shows that in many cases giving a negative Wassermann, we find spirochetes in the fetal cord and also in the placenta. This finding unquestionably disproves Colles' law which states that the mother of a syphilitic infant who shows no signs of syphilis herself, is immune against infection and can nurse her child with safety. It likewise disproves Profeta's law which is the converse of Colles' law and states that a healthy infant of a syphilitic mother can be nursed by its mother without danger of contracting the disease. The question of paternal syphilis has long been a matter of discussion. Until recently it has been held that it was possible that syphilis might be transmitted to the ovum by the father without infecting the mother. That this is theoretically possible is indicated by the fact that spirochetes have been demonstrated in the semen, and that a few animal inoculations with semen have been successful. Research in other directions has shown, however, that every mother of a syphilitic child is herself syphilitic.

The experiments with rabbits by Brown and Pearce<sup>2</sup> are of much value, though without immediate bearing on the transmission of syphilis to children. Their studies throw some light on

\*Read before the Staff Conference of the Norwegian-American Hospital, February 12, 1932.



the important question of how a father suffering from latent syphilis may still be capable of transmitting it to his wife and thus indirectly to the offspring. Material from popliteal nodes of six rabbits, taken after considerable period of supposed recovery, was reinoculated into other rabbits. In each case active syphilis resulted. The authors conclude that recovered rabbits may harbor virulent spirochetes almost indefinitely, even without further manifestations of activity. The lymphoid tissues of the body are probably the chief reservoirs of the virus during latent periods.

In an experimental study of the latent syphilitic as a carrier, Eberson and Engman<sup>3</sup> isolated the spirochete from five cases out of seventy-five, ranging in latency from one to forty years after the disappearance of syphilitic signs and symptoms. Three times the organism was found in inguinal glands and twice in semen. The strains produced typical syphilitic lesions in rabbits' testicles.

From these laboratory observations the question of marriage of syphilitic patients becomes a delicate and mooted problem. Many authorities at present say that it is proper to advise marriage if, after a full course of treatment, the Wassermann reaction of the blood and spinal fluid remained negative for two years. Clinically it has long been accepted that many men with known syphilis not well treated marry and have healthy children. While this may be true in some cases the incidence of congenital syphilis is very high. Its first great effect is fetal and infantile mortality. Abortion and miscarriage occur in 30 to 40 per cent. of cases.<sup>4</sup> Premature birth, especially at about eight months, is very frequently due to syphilis, about two-thirds of all syphilitic children being born about this time. Only 28 per cent. of children born syphilitic survive the first year. (Hyde gives 25 per cent.).

If the infant be born alive but with signs of syphilis, they are generally so characteristic as to be unmistakable. There is marked emaciation; the skin is wrinkled and dusky grey, and the face is shriveled, like that of an old man; on the palms and soles there are not infrequently small blebs or other skin lesions. In these cases the infant usually succumbs in a few days or weeks.

In many cases the disease is latent at birth

and the infant may appear to be perfectly healthy and symptoms only show themselves later. They usually appear about the fourth or fifth week, but may be delayed for a year or longer and occasionally even till adult life (*Syphilis Hereditaria Tarda*). One of the first signs in these cases is usually laryngitis, or syphilitic rhinitis which causes snuffles and interferes with nursing. The character of the cutaneous eruption varies and appears with or soon after the snuffles.

Bullous lesions are much more common in congenital than in acquired syphilis. The blebs contain mucus, or sanguinous fluid, and when they rupture form yellowish or brownish crusts. Lesions of this variety may be generalized but more frequently are limited to the palms and soles. Often on the general surface they are intermixed with other skin lesions.

Macules in congenital syphilis appear early, and are first seen over the buttocks and extend from there to the limbs, occasionally involving also the face and neck. By coalescence large patches are formed; some become infiltrated and covered with crusts resembling eczema; while others undergo desquamation, which is in sharp contrast to acquired syphilis.

The papules resemble in many respects those of acquired syphilis. They may be acuminate, convex, flat, large or small, smooth or scale covered, and many terminate in pustules. The small papular form usually occurs on the limbs. More commonly lenticular size papules occur that are discrete or in patches of infiltration. About the buttock and other moist areas they form condylomas, and in the mouth mucous patches.

Pustules may be localized or very rarely generalized; they not infrequently occur immediately consecutive to papular lesions and are evidence of a cachectic condition.

Cutaneous lesions of late congenital syphilis usually occur after the age of two years. They are usually localized and consist of gummas that are often destructive in nature. Nodular lesions are uncommon otherwise; the lesions resemble acquired syphilis. Associated with tertiary skin manifestations there is often:

A. Involvement of the viscera, such as an enlargement of the liver (interstitial hepatitis);

enlargement of the spleen, and there may be an enlargement of the testicles.

B. Affections of the bones are among the most frequent manifestations of hereditary syphilis and among the earliest to appear. In the early course of the disease one of the most constant symptoms is a thickening of the long bones accompanied by disease of the epiphyses. Early x-ray findings are:

1. Multiple separation of the epiphyses.
2. Saw-tooth metaphysis in well calcified bones.
3. Multiple circumscribed osteomyelitis of the long bones, shown by Roentgen rays as a patchy area of rarefaction.

There may be an exaggeration of the prominences on either side of the forehead known as frontal bosses or Parrot's nodes.

The bones of the hands may be involved producing a dactylitis.

There may be an anterior bending and a fusiform enlargement of the middle third of the tibia known as saber-shin.

Interference with the development of the nasal process of the malar bones leads to the characteristic "saddle nose." The nose is stubby with large nostrils, a depressed bridge, and a broad base so that the eyes appear widely separated.

Gummas in the bones are not uncommon and occur most frequently in the bones of the face and of the fingers.

#### C. Involvement of teeth:

1. Hutchinson's teeth is an involvement of the upper central permanent incisors causing their growth to be stunted and producing in addition a peg shape narrower at the biting surface than at the neck and notched on the biting surface.

2. Mulberry molars is a term used for changes in the upper and lower permanent molars, which present small fragile lateral projections from the cusps.

3. An accessory cusp on the inner side of the first molar is a disputed diagnostic sign and is known as the tubercle of Carabelli.

#### D. Affections of the Eyes:

1. Interstitial keratitis is rare before five and is most common between the ages of five and fifteen.

2. Occasionally the intra-ocular lesions may be the only manifestation of the hereditary syphilis. Of the eyeground pathology,<sup>5</sup> the most

characteristic finding is peripheral and central punctate pigmentation and papillary haze or "veiling" of the optic nerve head.

#### E. Affections of the Ears:

1. Compression nystagmus or fistula symptom without the fistula, when detected in a child, is pathognomonic of congenital syphilis.<sup>6</sup>

2. Nerve deafness is usually progressive and when present in a young person is suggestive of congenital lues.

*Treatment.* Prophylactic measures directed against congenital syphilis may be considered from the standpoint of radical eugenics to prevent procreation among luetics and of active treatment of prospective parents particularly of the mother during her pregnancy.

Various courses or systems of treatment have been proposed for the congenital luetic; a customary course is as follows:

Oral administration of mercury with chalk 1/10 gr. tid for children under two years; 1/2 gr. tid for children over six years. This is continued throughout entire course of treatment.

The intramuscular injection of sulpharsphenamine 0.1 gm. per 15 pounds of weight, once weekly for four weeks.

Intramuscular injection of mercury bichloride, 0.1% aqueous solution, 1/10 gr. per fifteen pounds of weight, once weekly for ten weeks. Or inunctions of the official unguentum hydrargyri (50% metallic mercury ointment): 15 grs. twice weekly.

Repetition of the sulpharsphenamine injections, once weekly for eight weeks.

A course of ten intramuscular injections of bismuth as the salicylate, in doses of .5 mg. per kilogram, a single dose should not exceed 100 mg.

These series of injections constitute one course of thirty-two weeks treatment. After one month intermission this course is repeated. A Wassermann is taken after each course of treatment and repeated every six months until negative for one year after cessation of treatment.

Recently stovarsol has been introduced in the treatment of congenital syphilis and results have been as good or better than with neo-arsphenamine and mercury. A course of treatment is as follows:<sup>7</sup>

- For 7 days, a daily dose of 0.005 gm. per kgm.
- For 7 days, a daily dose of 0.01 gm. per kgm.
- For 7 days, a daily dose of 0.015 gm. per kgm.
- For 42 days, a daily dose of 0.02 gm. per kgm.



Rest period of 4 to 6 weeks.

Repeat for three successive courses.

Continue treatment if Wassermann is positive.

The untoward reactions of stovarsol consist of gastro-enteritis, neuritis of the extremities and various skin eruptions, some resembling the fixed exanthems of the arsphenamines.

55 East Washington St.

#### REFERENCES

1. J. D. Perkel & E. S. Oretschkin: *Dermat. Slsche.* 57:47-55, (Oct.) 1929.
2. Brown & Pearce: *Arch. Dermat. & Syph.* 2:470 (Oct.) 1920.
3. Ebersson & Engman: *J. A. M. A.* 76:160 (Jan. 15) 1921.
4. B. Morgan: *Canad. M. A. J.* 11:849 (Nov.) 1921.
5. Green: *Am. J. Dis. Child.* 20:29 (July) 1920.
6. N. Asherson: *J. Laryng. & Otol.* 46:326-331 (May) 1931.
7. Bratusch, Martin: *Arch. F. Kinderh.* 92:26 (Nov 28) 1930.

#### 100,000 DIE OF CANCER IN 1931

The horrible cancer plague is rapidly spreading. According to the statistics of the Metropolitan Life Insurance Company, the death rate from cancer climbed up from seventy-seven to eighty-three per one hundred thousand during 1931, the greatest advance ever made in a single year. At this rate, the total deaths from cancer in the United States during 1931 were about one hundred thousand, and for every person who died of the disease, at least three or four persons are being tortured to death by the monster malady. And this in spite of all that is being done by physicians and surgeons to cure the victims of the disease. If the increase continues at the present rate, the deaths from cancer a dozen years hence will be double what it is at the present time.

Cancer is a disease of civilization. It is practically unknown among wild men and wild animals. It apparently prefers meat addicts to vegetarians.

The specific cause of cancer is still a mystery. No sure remedy is known.—*Health News*.

### Society Proceedings

#### GREENE COUNTY

Regular Quarterly Meeting of the Greene County Medical Society was held in White Hall, Sept. 10, 1932.

Dinner and Social hour at Dyer's Cafe, six to seven o'clock P. M. After dinner adjournment was taken to the basement of the Public Library where the meeting was called to order by the president, Dr. A. R. Jarman at 7:30 P. M. On motion the business session was deferred until after the scientific session.

Dr. Ivan E. Brouse of Jacksonville read a paper on "Diverticulæ of the Alimentary Tract," and showed many Radiograms of cases. The discussion of the paper was opened by Dr. W. H. Newcomb of Jacksonville. An informal discussion by the members followed.

The paper was highly instructive and the discussion brought out valuable points. Drs. Brouse and Newcomb were invited to give us a paper on chest conditions with special reference to tuberculosis at our December or March Meeting, as they find most convenient to themselves.

Minutes of March and June meetings were read and approved. Various communications were read and disposed of and the Society went on record as opposed to the Government program for hospital building. It was the consensus of opinion that service men can be much better cared for in private hospitals and at much less expense to the tax payer.

Blanks from the committee on Medical Economics of our State Society are doing good work along this line and deserve our hearty cooperation.

The application of Dr. Henry E. Hunt of Roodhouse for membership was read and referred to the board of censors.

Society adjourned at 10:00 P. M.

Eleven members and five visitors were present.

W. H. Garrison,  
Secretary.

#### SCHUYLER COUNTY

The Fifth Annual Meeting of the Schuyler County Medical Society was held at Scripps Park, Rushville, September 1, 1932. The meeting began at 3:30 P. M. with an interesting Medical Clinic conducted by Dr. H. S. Marsh, of the Jackson Clinic, Madison, Wisconsin. Some interesting and unusual cases were shown by Dr. Marsh, which with his comments, made the Clinic of greater value to the many attending this session.

Dinner was served at 6:30 P. M., following which, Dr. Everett P. Coleman, Councilor of the 4th District, of the Illinois State Medical Society, Canton, Illinois, acted in the capacity of Toast-Master. A few guests were introduced to the assembly, then the scientific program for the evening was given.

The first speaker was Dr. Arnold Jackson, Madison, Wisconsin, who gave a highly interesting illustrated talk on "The Treatment of Cholecystitis Based on Observation of 500 Operations." Dr. Jackson has recently carefully studied the case histories of five hundred cases of gall bladder disease operated on by members of his Clinic, and his evaluation of the findings was the basis of this discussion.

Dr. Jackson's discussion showed his intense interest in this subject, and his statistics displayed the fact that each case is given very careful consideration, before the proper operative procedure is decided on. The paper of Dr. Jackson was discussed by Dr. H. J. Jergens, Quincy, Illinois, and others present.

The last talk on the program was given by Dr. G. H. Ewell, of the Jackson clinic, whose subject was "Urologic Problems of General Interest." Dr. Ewell discussed the many manifestations of prostatic disease, gave the indications for operative relief, and the operation of election, for the various conditions found on examination. Some interesting case reports were

briefly discussed, showing the effects of modern diagnostic methods and safeguards commonly used, to lower the mortality of these operations. Dr. H. B. Henkel of Springfield led the discussion of this interesting talk, followed by others who were interested in the presentation.

The total registration for this meeting was approximately 140, many coming from a considerable distance to aid in making the meeting a highly successful one. Owing to the fact that there were some conflicting meetings the same evening in neighboring counties, the attendance was lighter than it should have been, were it not for the other meetings. Many guests came early in the day to participate in golf, tennis and swimming at Scripps Park, which is one of the finest of its kind in the country.

H. O. Munson, M.D.,  
Secretary.

### Marriages

HUGH G. BRIDEGROOM, Evanston, Ill., to Miss Mary Dunbar of Wheaton, June 11.

EDMUND RALPH CARMAN, New Lenox, Ill., to Miss Elsa Friday of St. Louis, June 11.

CHARLES E. FRANKLIN to Miss Elva Ruth Erlenborn, both of Oak Park, Ill., at Indianapolis, September 6.

WILLIAM EARL GREGG, Elgin, Ill., to Miss Virginia Louise Tracy of Pontiac, September 14.

CHARLES J. HUTTON, Atlanta, Ill., to Miss Edith Mae Robinson of Lincoln, June 15.

HAROLD CHARLES LUETH, Chicago, to Miss Elizabeth Adelaide Bullock of Oak Park, Ill., September 3.

MAE H. D. McINNES to Mr. Steve G. Pappas, both of West Frankfort, Ill., at Litchfield, August 16.

PETER G. PITCHOIS, Chicago, Ill., to Miss Harriet S. Georgacakis of Cicero, Ill., July 31.

HOLLAND WILLIAMSON to Miss Josephine Alexander Cathcart, both of Danville, Ill., September 10.

### Personals

Dr. William A. Evans gave a talk on Public Health Problems at the September 22nd meeting of McHenry County Medical Society.

Drs. R. K. Packard, John R. Neal and Harold M. Camp presented the scientific program at the September 22 meeting of Franklin County Medical Society.

Dr. Samuel M. Feinberg addressed Will-

Grundy County Medical Society at a luncheon meeting in Joliet, September 21, on the subject "Hay Fever with Special References to Developments in the 1932 Season."

Dr. Irving Muskat of Chicago addressed the Mississippi Valley Sanatorium Association in Indianapolis, September 12 on "The Value of Eradicating Chronic Tuberculosis of the Middle Ear and Mastoid Diseases in the Tuberculous Patient."

Dr. Benjamin Goldberg of the University of Illinois addressed the class on tuberculosis at the Post Graduate School of Medicine of Columbia University, September 7, on "The Building of Tuberculosis Organizations." He also addressed the American Congress of Physical Therapy on the same date on "The Present Trend in Tuberculosis Mortality."

Dr. Max Thorek has been invited to address the Kane County Medical Society on Wednesday, October 5, 1932, at 6 P. M. at St. Joseph's Hospital, Elgin, Ill. His subject will be "Possibilities in the Reconstruction of the Human Form." (Motion picture demonstration.)

Dr. Marion L. Klinefelter, St. Louis, addressed the Adams County Medical Society, September 12, on fractures.

Dr. Philip H. Kreuscher, Chicago, addressed the Fulton County Medical Society, August 24, on "Fractures of the Elbow and Hip."

Dr. Arthur E. Williams, Rock Island, addressed the first fall meeting of the Rock Island County Medical Society, September 13, on "Maya Medicine."

Dr. Henry E. Monroe, Shelbyville, spoke on appendicitis before the Shelby County Medical Society at Lithia Springs, recently.

The Will-Grundy Counties Medical Society was addressed in Joliet, September 28, by Dr. William L. Brown, Chicago, on cancer.

Dr. William H. Olmsted, St. Louis, addressed the Madison County Medical Society, September 2, on "Arteriosclerosis of the Lower Extremities with Particular Reference to the Treatment of Diabetic Gangrene."

Dr. Lena K. Sadler, Chicago, addressed the Carroll County Medical Society, Savanna, September 30, on "Mental Hygiene and Adoles-



cence," and Dr. Clement L. Martin, Chicago, "Current Proctologic Problems of General Interest."

The St. Clair County Medical Society was addressed, September 7, by Dr. Joseph P. Costello, St. Louis, on "Common Disorders of Childhood." Dr. Daniel L. Sexton, St. Louis, addressed the society, September 1, on "Practical Value of Present-Day Endocrine Therapy."

Dr. George M. Curtis has resigned as professor of surgery in the Graduate School, Division of Biological Sciences, University of Chicago, to accept a similar position at Ohio State University College of Medicine, Columbus. Dr. Curtis became associated with the university in 1925, when he was appointed associate professor of surgery and associate professor of experimental surgery under the Douglas Smith Foundation for Medical Research at the institution. He will assume his new position at once.

Dr. Herbert E. Chamberlain has been appointed associate professor of psychiatry in the department of pediatrics, Division of Biological Sciences, University of Chicago. In this capacity he will assist in a study of delinquent children in Chicago. Medical cooperation covering the entire field of pediatrics will be provided for the study and it is planned to establish an adequate child guidance clinic to which children in need of psychiatric advice and treatment may be referred. While this clinic is being established to assist in this social service study, it is understood that patients from other sources will be accepted, particularly those referred by physicians in the department of pediatrics. It will be administered as a regularly constituted clinic under the jurisdiction of the department of pediatrics. Dr. Chamberlain recently resigned as director of the child guidance clinic of the board of education at Minneapolis.

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### News Notes

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—Guest speakers who addressed the Logan County Medical Society, September 22, were Drs. James G. Carr, on "Prognosis of Coronary Diseases"; Bernard Fantus, "Therapy of Intestinal Stasis"; William R. Cubbins, "Injuries of the Knee Joint," and Carl A. Hedblom, "Surgical

Treatment of Pulmonary Tuberculosis." The speakers were from Chicago.

—The Goodwill Industries, a philanthropic organization that provides occupational training for the handicapped, moved, September 26, into its new headquarters, a building formerly occupied by the University of Illinois Medical School. In this building the Goodwill Industries plans to carry on a school for occupation therapy to work in connection with its shops for the handicapped and occupation service and the Cook County Hospital.

—A course of lectures and clinics will be given, October 3-12, at the Norwegian-American Hospital by Dr. Julius Bauer, professor of medicine, University of Vienna, Austria. His subjects include constitutional factors in disease, arterial hypertension, hyperthyroidism and hypothyroidism, obesity, so-called rheumatism, parenchymatous lesions of the liver, diseases of the pituitary gland, suprarenal syndromes and human genetics.

—The University of Illinois Research Hospital is conducting its second experiment with a special ward for hay fever patients. Special air filters free the air from pollen. Each week, from August 15 to October 1, a group of sufferers enters the ward for observation and tests, according to the plan. Only nights are spent in the hospital. Wesley Memorial Hospital has also announced the equipment of several rooms with air filters and rubber covered mattresses and pillows.

—W. H. H. Miller, former head of the state department of education and registration, has been denied a release from the county jail, where he has been serving sentence for operating a fraudulent diploma mill as a state official. In his petition for release Miller stated that he was penniless, having transferred all his property to his wife in Champaign, according to the *Chicago Tribune*. The judge indicated at a previous hearing that the property transfer was fraudulent. Miller will not be released until he has paid the \$2,000 fine which was imposed by a jury the same time as the sentence, Dec. 10, 1929. Miller had been found guilty of conspiracy to sell medical and dental licenses to persons not licensed to practice.

—Whooping cough, with about 110 new cases

weekly, is the most prevalent epidemic disease in Illinois at present, states the *Illinois Health Messenger*, September 15. Whooping cough has been unusually prevalent the last two years. Typhoid accounts for the worst current health situation so far as epidemic diseases are concerned, the report continued, with case reports up through the thirty-fifth week of 1932 nearly double the incidence for the corresponding period of 1931. Late in August a sharp decline in cases was noted. However, the bulletin pointed out, there were no epidemics due to this cause. Diphtheria has never been less prevalent in the state; measles is at a low ebb and smallpox is practically nonexistent. Early in the season infantile paralysis manifested threatening epidemic signs but dropped to an average of about six new cases each week in August, a number far below that of 1931.

—School children of Springfield will receive free physical examinations and those unable to pay will be given treatment without charge, according to a plan adopted by the Sangamon County Medical Society, September 1. Vaccinations against smallpox and immunizations against diphtheria will be provided at reduced rates for families in moderate circumstances. The program was sponsored by Dr. Gottfried Koehler, who was recently appointed director of health and hygiene of Springfield schools, a position created with a view to instituting better health supervision in the schools. According to the plan, every doctor in the society will conduct a children's clinic in his office during one office period each week. The school health service will refer all cases to the family physician. The Sangamon-Menard-Logan County Dental Society is planning to adopt a similar program, it was reported. The dental examinations will be conducted at the schools instead of in the dentist's office. The plan will prevail only during the current economic depression.

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## Deaths

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JOHN FRANK ADAMS, Crossville, Ill.; Hahnemann Medical College and Hospital, Chicago, 1896; aged 61; a Fellow, A.M.A.; died, August 23, in the Carmi (Ill.) Hospital, of an overdose of morphine, self-administered.

CARL BAKER, Herrin, Ill.; Northwestern University

Medical School, Chicago, 1906; a member of Illinois State Medical Society and member of the Marion Flying Club and holder of private pilot's license, aged 55; died, September 17, from injuries received when his plane crashed during a solo flight.

NATHANIEL ALLISON, chairman of the division of orthopedic surgery of the University of Chicago School of Medicine, died at La Jolla, Calif., August 30, of heart disease. Dr. Allison was born in St. Louis in 1876. He received his M.D. degree from Harvard University in 1901. Following a term of service in the Boston Children's Hospital from 1902 to 1903, he became dean and professor of orthopedic surgery in the Washington University Medical School, St. Louis, and held this position from 1909 to 1923. During the World War he served as chief of orthopedic surgery in the American Expeditionary Forces in France and received the Distinguished Service Cross in recognition of his service. In 1923 he returned to Harvard University Medical School as professor of orthopedic surgery, which position he held until 1929, when he became head of the orthopedic department in the University of Chicago. When in Boston, Dr. Allison was also chief of orthopedic surgery in the Massachusetts General Hospital and director of the Boston School for Crippled Children and the Boston School for Occupational Therapy. In Chicago he was associated with the Gertrude Dunn Hicks and Adele McElwee Memorial hospitals and with the Home for Destitute and Crippled Children. He was president of the American Orthopedic Association in 1922 and also a member of other medical and surgical organizations. He contributed many articles on his specialty to medical literature. He was also co-author with Ghormley of "Diagnosis in Joint Disease." In the American Medical Association he served as chairman of the Section on Orthopedic Surgery from 1914 to 1915. He rendered especially valuable service as a member of the Cooperative Committee on Fractures, which arranged exhibits on this subject at most of the recent annual sessions of the American Medical Association. He cooperated also in the publication of "The Outline of the Treatment of Fractures," issued by the Association.

CLEAVER HENRY BRINKERHOFF, Chicago; University of Illinois College of Medicine, Chicago, 1913; aged 43; died, July 13, of endocarditis.

WILLIAM CHARLES DAVIS, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 73; died, July 13, of myocarditis.

ANTHONY J. KARALIUS, Chicago; Loyola University School of Medicine, Chicago, 1916; aged 42; died, August 23, of cyanide poisoning, self-administered.

THOMAS C. MARION, Gillespie, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1886; aged 87; died, June 27, of arteriosclerosis.

WALDEMAR J. SIEMINOWICZ, Chicago; College of Physicians and Surgeons, Baltimore, 1893; College of Physicians and Surgeons, Chicago, 1895; aged 72; died, June 13, of carcinoma of the rectum and chronic nephritis.



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## Editorials

### MICHAEL DAVIS SCORES ONE FOR THE NEEDS OF MATERIA MEDICA TO TEN FOR CORPORATIONS PRACTICING MEDICINE

That famous sale into bondage of Joseph by his brethren was a mere prankish schoolboy swap in the light of what some of our professional brethren have made up their minds to do with the science of medicine.

If these misguided ones can't perpetrate the slave sale on one block, they are determined to do it on another.

Partial enslavement having been accomplished by lay handiwork in endowments, corporations practicing medicine, part pay clinics and bureaucratic blows from Washington, comes now another trick. This is destined, for all its soft mouthings, gentle music of clinking profits and sweet warm air of the trumpet that tells of green pastures far afield, to give medicine a lusty sock on the snout and at the same time delivering it hog-tied and bound into the hands of the quacks and Egyptians.

Medicine, God save the mark, falls into the trap with all the innocence of the youthful Joseph. Not until the cloak of many sacrifices and services is hawked in the trophy room of the destroyers, and quartered and parcelled out among the thieves, will the depth and strength of the outrage make itself evident. By that time it will be too late.

The latest siren voice to be heard in the wilderness of economic distress surrounding us is that of a misguided Moses crying out from the smugness of the Rosenwald foundation. Masking his arguments as a plea for better mutual understanding between the profession and media of publicity the gentleman scores one for the needs of materia medicine to about ten for those corporations practicing medicine whose opulent advertising proves that publicity as much as competition is the life of trade, if not of science and ethics.

It is a pretty raw thing to see medicine put on a trade basis.

Barter and sale do not, can not, will not go hand in hand with those humanities through which medicine has flourished and upon which it was founded. The Aesculapian doctrines, the Hippocratean oath have nothing to do with bargain sales, fire salvages, or turnover of stock.

Alas and alack! It is not a matter of money with the medical profession, albeit we must live, but of the very nature and essence of the life work of medicine's neophytes. That is the hair upon which medicine and medical imitators must ever split.

Truly the general public needs education in the matter of medical efficiency. Of that there is no doubt. With no criticism of the profession of publicists and advertising men, at the same time there is not a yard stick by which either medicine, the law or the church can be measured. These three elements in the life of modern civilization, dealing as they do with many of the abstract verities cannot be computed by the rule and the weight demanded by concrete elements. When you traffic in the human body that houses the immortal soul it is cheap business, inefficient business, yes, actually lying business to attempt to build your tables on the basis or even the ratio of the grocer, the clothier and the carpenter.

Now though Mr. Michael M. Davis, medical director of the Julius Rosenwald fund, evidently feels that the medical profession should play the sunflower rather than the violet by the mossy stone, certainly if Mr. Davis' advice were followed literally as was said at the first of this article, Joseph and his bondage would be free as the air compared with the pit into which the medical profession will have followed.

Probably Mr. Davis knows more about the ways of medicine than he does of advertising and paid publicity. Even so, the veriest tyro in public relations should realize that editorial ethics is as hidebound as that of medicine itself, and that there can be no compromise between space-paid-for publicity and that which emanates as editorial dicta.

The ethical newspaper is as careful of its ethical editorial policy and holds it as much beyond price as is medical ethics, and as the American Medical Association itself. One is

East, the other is West. Kipling was right—"Never the twain shall meet."

Existing differences between the organized medical profession and organized publishers over medical advertising are caused, according to Mr. Davis, "By a misunderstanding."

Well, of course that is what caused the world war. And it was just another misunderstanding that sold Joseph into Egypt.

But let Mr. Davis speak for himself:

#### HEALTH EDUCATION IMPORTANT

"The education of the public in health matters and the extension of services which are essential to prevent or control diseases dangerous to the public health have become highly important," says Dr. Davis. "Policies and principles should be developed which will facilitate the use of modern methods of publicity for these purposes while also protecting professional standards.

"It is essential to draw the distinction between advertising for public health and advertising conducted with the aim of financial profit. Medical organizations whose codes of ethics now recognize public health advertising in principle should develop more specific policies appropriate to this field and discriminate these from the policies applicable to individual physicians and to advertising for commercial purposes.

#### URGES BETTER UNDERSTANDING

"The organized medical profession on the one side, and editors, publishers and advertising agencies on the other, do not appear to have come into sufficient touch with one another to recognize each other's standards and attitudes. The publishing group seems to have regarded the medical code as unduly emphasizing the individual point of view and as having failed to take the public into consideration.

"The medical profession, as a body, has not been informed about the modern development of advertising, or as to the standards set by the best advertising media. Closer interrelation and mutual understanding between the two groups would be of mutual advantage."

Few medical bodies, we are sure, will accept Mr. Davis' theories without some tall arguing.



## NOT TOO LATE TO SAVE THE MEDICAL SHIP OF STATE

The medical ship of state, undergoing squally weather and outlandish gales, has every chance in the world to make port safe and sound by display of canny seamanship and courageous loyalty.

Canny seamanship right now means sticking by the ship and cargo and holding to the course.

The time honored lane for the ship of medicine to traverse is charted carefully.

There can be no dallying with the compass, no reefing of sails when full sail is indicated, and the bell rings for "straight ahead."

Right now, too, the rigging must be lashed tight and trim and no loose ends allowed to interfere.

Universally the world is in convulsion. A tidal wave of distress sweeps from axis to axis in the most unprecedented upheaval of civilization's history. What the medical profession must remember is that Aesculapius and Hippocrates started off the good ship medicine with the right sort of ballast, and—to stick to that ship.

A lot of that ballast was self respect for the profession; for the practitioner, and for humanity, and grew out of a most exalted ethical sense. First, last and always, the physician was a man of honor and honor was rendered to him, first, last and always.

What now of honor and honors? In these days of turmoil the average physician finds himself reduced almost to beggary. He has shot his bolts of sacrifice, of service and of honorable procedure into the midst of his fellows and finds only too often that not only is honor not his but that he is in danger of becoming an object of ridicule—colloquially "An easy mark." Unselfishness has been a bitter boomerang.

He must give of strength and skill and knowledge and be too proud to ask recompense, too wise to expect it. He must take payment how, when and *if* his patient cares to pay him. Like the fields and groves he must wait for the miracles of rain and snow to slake his thirsts.

Nor dare a doctor murmur in protest when the people whom he serves rise up and take from him his life work.

Yet all the lay-endowed institutions practicing medicine anywhere be they ever so rich and

arrogant cannot take from the doctor his skill, his science, his wisdom, and his ideals.

So if the crew but stick together, hold on to the ballast and watch the chart, navigate as navigators should and watch out for the siren rocks of false promise and falser premise such as relief legislation that does not legislate, encroachment upon individual and professional rights and deprivation of a living wage for every physician—a wage commensurate with the pay of a corner grocer or of a mechanic's apprentice helper—the ship will be saved and make port with a golden cargo and to the undying good of civilization, and the humanities.

To be a "medical-politician" holds no opprobrium for those who realize that it is all for medicine and naught for politics that this campaigning is done: These doctors are out to help save the ship.

As a matter of fact a medical politician is really a pretty good fellow. In the strictest sense of the word a medical politician (and there exists wide difference between a medical politician and a politico-medico)—is a man sufficiently interested in the economies of medicine to let himself in for a lot of hard and extra work. These include such labor-laden honorariums as a man's permitting himself to be appointed a member of the legislative committee of his county medical society; to allow himself to be elected a member of the House of Delegates or of governing boards of his state or county medical society, or to accept membership in such bodies as the state board of registration, etc., etc., of medicine. Of course such work takes and always has taken the poor medical politician away from that select atmosphere of pure scientific research and disassociation from anything as mundane as money except when money came in gobs and gifts as to a king's favorite from endowed foundations and research funds. All very necessary in its way, *but* the entire profession can't dedicate itself to research and let itself walk the ways of erudition over ailing and wailing bodies of the dead and the dying.

So when old man slump unloosed the caves of the winds and sent depression gales flying hither and yon, a lot of those happy researchers who had sat on the heights refused to recognize the brotherly bond between himself, a

man who worked for fame—(albeit he sat on a plush divan while working)—and the poor devil who howled because he worked for humanity and had to have a few pence per diem—well, a lot of those who had been sitting on the heights were blown off, out into the cold and cruel sea of every day facts.

Have these “blow-aways” been yelling for lifeboats? Have they grabbed onto the life lines thrown out by the poor old medical-politicians who have been busy trying to keep the ship of medicine seaworthy, calking up the leaks where reefs of cash-through-lay-dictation and disguised socialistic tenets have ripped holes into the good old hulk? And trying to save the rigging and all the rest?

Indeed they have. For which let us all thank Heaven.

Not for the slump but for the fact that the “blow-aways” have been blasted out of their fool’s paradises and palaces of Circe and now want to climb back on board ship with their fellows. And that way safety lies.

As they are being brought on board what do they ask of their rescuers?

“What has happened?” they ask. “Here I am as proficient and strong as I ever was, and I have discovered a lot and learned a lot and have just as big a practice but I have no income. What and why?”

The answer comes back from bridge and hatches, poop-deck and galley:

“You were too busy thinking of yourself to think of the mother science. Too busy ‘researching’ and getting your plush cushions to realize that after all nature is raw and medicine goes hand in hand with nature. Too much engrossed on your heights to bother about protection and preservation of the science and practice of medicine and failing to do a little research and a little defensive work in that quarter so that state medicine and socialistic practices could be kept from making fatal inroads on the practice of medicine so that the average conscientious practitioner must be endowed if he is going to keep alive to practice and to eat while he practices.”

The gods are to be thanked, let it be repeated, that these awakened ones are slowly beginning

to realize the debt they owe these pioneers at whose efforts to stop the socialization of medicine, they have turned a sneer and thumbed the nose. They have not shared in this burden, and yet they have been reaping benefits undeserved and far greater than those harvested by the “medical-politicians” who were not afraid to get out into the thick of the mess and to fight fire with fire, politics with politics for the sake of preserving the medical profession and its glories.

This knowledge is fetching to the hearts of the *men among men* among the rescued, an ardent sense of shame. Sincere in their apologetic murmurs, that sincerity must be accepted even if ignorance of the emergency is as culpable as ignorance of the law. If they wish to make amends (these prodigals) and the most of them do—the method is easy. Let them man the ship, take the wheel, stand watch, and so let those who have dared not close an eye get temporary well earned rest. For the reefs and shoals grow more perilous as the harbor nears.

The Ship-of-Medicine is battling the gales with decks awash; much rigging lost and crippled engines. What fitter time then, than this, for the rescued prodigals to turn in, man the pumps and through unity of purpose and action help the bark make harbor?

The crisis is here, but the day is not lost. Like a mother, torn and wracked by frightful convulsions, the ship of medicine is fighting for life and the right to live and serve faithfully her nearest and dearest—the children of men, the humanities of life.

This storm was long ago forecast by pioneer “medical-politicians”—those physicians with the gift of vision who strove alone and unaided to bring the ship to port. Those critics who scoffed have come to beg succor. And succor has been given in as much as it could be given. In return, the plea of the pioneers is “all hands to the pumps.”

Let no one man of medicine turn a deaf ear to the call and so, when the harbor is gained find himself an outcast in his own heart even if he escapes open opprobrium from the tongues of men.

Save the ship. It can be done. But the man power is needed NOW.



## THE ST. CLAIR COUNTY MEDICAL SOCIETY CONDEMNS RAY LYMAN WILBUR FOR ATTEMPTING TO FORCE STATE MEDICINE UPON THE PROFESSION

At the June, 1932, meeting of the St. Clair County Medical Society the attention of the members of the Society was called to certain newspaper statements of Dr. R. Lyman Wilbur, which were thought to be derogatory to the members of the medical profession. The Society appointed a committee to investigate these published utterances of the aforesaid Dr. R. Lyman Wilbur and make such recommendations to the Illinois State Medical Society as they think justifiable.

The committee carefully reviewed a number of articles in various publications; (a list given at the conclusion of this report credited to Dr. R. Lyman Wilbur, and not denied by him as his utterances.)

This review shows very conclusively that the author advocates either knowingly or unknowingly, state medicine; and further severely condemns the profession in the manner of caring for the sick; especially of poor and middle class. Many of these statements to the public indicate that the profession in its various specialties are demanding undue fees for the amount of service given. Now inasmuch as all such statements and assertions are untrue and not made in good faith and are disloyal to the profession, and whereas these statements have a great influence in breaking down the relationship existing between the doctor and patient and creating distrust in the mind of the layman; an impression decidedly unfavorable to as honorable a profession as the world has ever known.

And whereas the position of the author of said assertions is such as to create confidence in the layman that he, as past president of the American Medical Association, President of one of the great American Universities and a Cabinet Officer in the government, and in all publications these titles are emphasized, his assertions become more odious; now, therefore, we the committee earnestly recommend to the Illinois Medical Society such actions as they deem suitable be taken; and we further recommend the State Society report to the American Medical Association and urge that body to take

proper action as they deem suitable in the case.

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The following references are the basis of the above resolution:

Medical Progress in an Economic World, Ray Lyman Wilbur, M.D., President, Stanford University (address before the 1928 annual meeting of the California State Medical Association).

The High Cost of Health—*Literary Digest*, June 30, 1928. (Remarks of Dr. Wilbur on behalf of Committee on Cost of Medical Care.)

R. L. Wilbur Lays Big Doctor Bills to School Cost—*Chicago Tribune*, Feb. 19, 1929. (Remarks of Dr. Wilbur while presiding at session of Congress on Medical Education, Medical Licensure and Hospitals at Chicago.)

The Relationship of Medical Education to the Cost of Medical Care—Ray Lyman Wilbur, M.D., Secretary of the Interior. (Address given at Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 18, 19, 20, 1929.) Reprinted from Proceedings of the Congress.

Millions Need Medical Care, Says Wilbur—*Chicago Evening Journal*, May 27, 1929. (Quotes from remarks made by Dr. Wilbur at semi-annual meeting of committee on Cost of Medical Care.)

Leaving It to the Doctors—*Chicago Tribune*, July 16, 1929. (Editorial commenting on remarks made by Dr. Wilbur at Convention of American Medical Association.)

Problem of Medical Cost, Ray Lyman Wilbur, M.D., Secretary of the Interior—*Chronicle*, Gardner, Ill., Aug. 15, 1929. (Comments on five-year program of Committee on Cost of Medical Care.)

Wilbur Urges Best of Medical Help for All—*Chicago Evening Post*, Oct. 22, 1929. (Reporting remarks of Dr. Wilbur at dedicatory exercises of new Medical Building at University of Virginia.)

Medicine in Service, Ray Lyman Wilbur, M.D. (Address at dedication exercises of new Medical Building, University of Virginia, Oct. 22, 1929.) *Journal of the American Medical Association*, Nov. 30, 1929.

Extend Healing to All, Wilbur Warns Physicians—*Chicago Herald Examiner*, Oct. 23, 1929. (Quotes from remarks of Dr. Wilbur at dedication exercises of new Medical Building at University of Virginia, Oct. 22, 1929.)

The First Three Years' Work of the Committee on the Costs of Medical Care and Its Plans for the Future, Ray Lyman Wilbur, M.D. (Address at Committee's Spring Meeting, 1930.)

Under Group Practice the Cost of Medical Care is Likely to Be Increased, *Illinois Medical Journal*, Sept., 1931. (Quotes statement of Dr. Wilbur appearing in *Public Ledger* (Phila.) under date of March 22, 1931.)

Doctors Talk Economics, *Chicago Evening American*, Feb. 15, 1932. (Quotes from remarks of Dr. Wilbur at session of Congress on Medical Education, Medical Licensure and Hospitals, Chicago.)

U. S. Activities Peril Doctors, Warns Wilbur, *Chicago Herald Examiner*, Feb. 16, 1932. (Quotes from address of Dr. Wilbur at session of Congress on Medical Education, Medical Licensure and Hospitals, Chicago.)

Doctors Dispute Business as Aid to Profession, *Chicago Tribune*, Feb. 16, 1932. (Remarks of Dr. Wilbur at session of Congress on Medical Education, Medical Licensure and Hospitals, Chicago.)

Public Sharing of All Doctor Bills Urged by Wilbur, *St. Louis Star*, March 18, 1932. (Remarks of Dr. Wilbur at luncheon with newspaper men at Bankers' Club, New York City, March 17, 1932.)

Organized Medical Care Urged to Aid Persons of Low Income, *United States Daily*, March 19, 1932. (Quotes from address by Dr. Wilbur before representatives of Milbank Memorial Fund at New York City, March 18, 1932.)

Health Taxes?—*Time*, March 28, 1932. (Commenting on Dr. Wilbur's report as chairman of Committee on Cost of Medical Care to be given in November, 1932.)

Medical Instruction Needs Reform, Says Secretary Wilbur, *United States Daily*, May 7, 1932. (Quotes from remarks by Dr. Wilbur before members of American Council on Education at meeting in Washington, D. C., May 6, 1932.)

Resolutions Adopted by St. Louis Medical Society May 3, 1932, *Bulletin of the St. Louis Medical Society*, May 27, 1932.

Economic Aspects of Medicine, *Chicago Daily News*, Feb. 17, 1932. (Editorial making slight reference to remarks of Dr. Wilbur at Congress on Medical Education, Medical Licensure and Hospitals, Chicago.)

Note: Several State medical journals have taken Dr. Wilbur to task because of his published statements and talks in which he advocates universal state and national care of the sick, for instance: The Journal of the Tennessee State Medical Association, April, 1932, speaking of Dr. Ray Lyman Wilbur and the committee on the cost of medical care concludes a two page editorial with the following:

"Organized medicine has contributed something to the present prominence of the chairman of the committee on the cost of medical care. Was an error made?"

Southern Medicine and Surgery, September, 1932, in a two and a half page editorial "Doctors Should Resume Leadership in Scientific, Civil and Political Affairs," quotes the action of the St. Louis County Medical Society winds up the article in the following language:

"In whatever Dr. Wilbur has to say in condemnation of practitioners of medicine, honesty would require that he make it unmistakably plain that his pronouncement is no confession of an eminent practitioner of medicine, but the expression of opinion of an outsider.

"Manifestly, the St. Louis Medical Society's members are not abashed by high office. Most likely they hold less indulgence should be exercised toward those positions of power and honor toward lesser folks. Medicine

has suffered much, and needlessly, from failure to call the high-and-mighty to strict account."

Medical Times, October, 1932, in an editorial "The Washington Merry go round" concludes its editorial in the following:

"The last utterances of Wilbur is of a piece with his recent remarks upon the benefits of the depression in childhood."

An administration that speaks in such banal, inept and intellectually bankrupt voices cannot commend the respect of the civilized element in this country.

It is useless to multiply instances of similar character. Numerous Medical Journal quotations condemning Dr. Wilbur could be cited.

## ST. LOUIS MEDICAL SOCIETY CRITICIZES DR. RAY LYMAN WILBUR

At the May 3d, 1932, meeting of the St. Louis Medical Society the following resolution was adopted:

WHEREAS, it has been a matter of common observation and knowledge, during the past year or two or more, that there have appeared in the daily press several articles or addresses credited to Dr. Ray Lyman Wilbur, and that in no instance, so far as known, has either responsibility or authorship been denied by him, and that these specific articles have been characterized by statements very frankly adversely reflecting upon the professional integrity of the Medical Profession, upon its maintenance of technical skill and knowledge, upon its conversance with the progress of Science in general, of Medicine in particular. It has been very frankly and repeatedly charged by him that the Medical Profession is censurably obsolete in its current concept, in its current policies, in its current visualization of the things of today, in its current interrelationships with the citizenry in general, in particular in its current execution of the trust imposed upon it by the Commonwealth regarding all matters that directly or indirectly are involved in the complex problem of the maintenance of the health of the citizenry. It has been charged by him that the citizenry has been, and is being, denied proper medical and surgical skill and care, and that, for that which it receives, it is being greatly and unjustly overcharged. It has been charged by him that the Medical Profession views with lethargic indifference its own very obvious delinquencies, inadequacies, and neglects—that it views with active antagonism any far reaching constructive readjustments of



either training or practice that will tend to coordinate Medicine more effectively with the tempo of the current day, and with the probable pending future. It has been further charged by him not only that a traditional conservatism of this noblest of the ancient liberal Profession is directly opposed to any substantial liberalization of either concept, policy, or practice;—but also it has been specifically charged by him that “the rugged individualism of physicians” is one of the “chief obstacles to plans for providing adequate, reasonably priced medical service to Americans”;—and

WHEREAS, Dr. Ray Lyman Wilbur, in these specific articles, that have appeared in the current press, urges in remedy for the existing order of things, that to his mind appear so gravely inadequate, so grossly censurable,—group practice, the wide assumption by the Commonwealth of the financial and professional responsibilities for the illnesses and the casualties of the individual, and yet further “the enactment of some sort of National legislation” of sufficiently far reaching and drastic elasticity that will wholly remove these various obstacles to which he adverts, and will establish in lieu thereof, in beneficent functionation a radically new and radically different order of things,—the which will inevitably fructify to the enormous and widespread betterment of the Commonwealth. Furthermore Dr. Ray Lyman Wilbur has specifically charged, as reported in the current press, that “the bulk of the medical profession opposes any plan which would make it difficult or impossible for any individual member to build up practices bringing in \$100,000 a year or more, and so some sort of compulsion will be necessary”;—and

WHEREAS, it would appear that the various charges, criticisms, and animadversions, that Dr. Ray Lyman Wilbur has assumed the privilege of having recorded, as his personal opinions, in the daily press, are not grounded on unimpeachable evidence;—that he assumes the privilege to deny the right of the practitioner of Medicine to attain an income in excess of that which he arbitrarily is pleased to establish as, in his opinion, adequate for professional service, and that such limitation of financial recompense is nowhere prescribed, nor no such delimitation of personal endeavor enjoined, so far as known, in the precedent Bill of Rights,

in the later Constitution of the United States, nor in that of any of the Component forty-eight States;—and that he conceives and endorses plans and policies of far reaching and drastic consequence to be assumed by the Commonwealth, and enforced under a system of laws never hitherto approved in these United States, repugnant alike to both the sound traditions, and the spirit of the historic citizen of these United States, and that such laws controlling such policies have in no other Nation demonstrated either a beneficent efficiency or a constructive progress consonant with the standards and the ideals of a free citizenry, and furthermore, that he proposes and endorses “compulsion” in the execution of his plans and policies, which are in their essence Socialistic in nature, disruptive to the manliness of a free-man, and are concretely demonstrating their pernicious and enervating activations in such countries as Great Britain, Germany, Austria, during these current days;—and

WHEREAS, it would appear that even if all that Dr. Ray Lyman Wilbur arbitrarily maintains be correct, and that the Medical Profession stands attainted of lethargic indifference, of grave delinquencies, and of unpardonable infidelity, to the Commonwealth in which it functions;—even so, there yet remains not the slightest ground of justice, nor of good taste, nor of ethical propriety, upon which he may, at his unrestrained pleasure,—and pending indubitable substantiation of his wholesale destructive charges against the Profession of Medicine in these United States,—exploit his personal destructive criticisms in the public press, widely disseminate that which inevitably will rob the Profession of Medicine of the well deserved respect and the abundantly earned confidence of the community, that which if forced to its legitimate conclusion will reduce the lofty Profession of Medicine to that of an huckstering trade and, in general, will but multiply the protean difficulties, and extend the lamentable chaos of the present extremely difficult days;—and

WHEREAS, if the foregoing precis be correct, or even approximately correct, it is held by The St. Louis Medical Society, a component of The Missouri State Medical Association, itself a component of The American Medical Association, that these disruptive and destructive pub-

lie utterances of Dr. Ray Lyman Wilbur are disharmonious with The Principles of Medical Ethics officially sponsored and upheld by the American Medical Association;—nor is his current policy of public denunciation of, and public criticism of, the Medical Profession held to be in harmony with either the best thought, the best traditions, or the well known ethical restraints that are normally and generally assumed by each member of the Profession, and are commonly superimposed as the official controls under which each member of the Profession may be held accountable;—be it therefore

*Resolved*, that the entire matter of these public sayings of Dr. Ray Lyman Wilbur, in destructive criticism of the Medical Profession of these United States (of which the clipping from the *St. Louis Star*, of March 18, 1932, is submitted as a recent and a concrete document in evidence) be referred to The Chairman of The Judicial Council of The American Medical Association with the request for a thorough and an impartial investigation of the facts;—and be it further

*Resolved*, that if it be determined by The Judicial Council that Dr. Ray Lyman Wilbur has been guilty of unethical conduct in his public behaviorism toward the Profession that has so highly honored him and to which, so long as he is a component member, he owes unswerving allegiance;—or if it be found that Dr. Ray Lyman Wilbur is sponsoring, here in these United States, medical concepts and policies, and governmental enactments, that are essentially Socialistic, or otherwise destructive in scope, inimical to either the individualism, or the independence, or the integrity of the American freeman;—upon which the solidarity of these United States was founded, and upon which its noble progress has been so abundantly justified, it is herewith requested of The Judicial Council of The American Medical Association that appropriate disciplinary action be promptly exercised upon the offender;—and be it further

*Resolved*, that The Chairman of The Judicial Council be requested to forward to the Secretary of The St. Louis Medical Society a copy of its complete findings and of its complete actions, in the matter herewith submitted. Carried.

## HERE IS A GLAD HAND FOR THE HARASSED MEDICAL MAN

Out of the home of William Penn and Benjamin Franklin comes wisdom in the lay press worthy of Poor Richard's Almanac.

It deserves quotation at length and here it is. This golden encomium appeared originally on the editorial page of the October 6 issue of "*Every Evening*" of Wilmington, Del.

### OUR DOCTORS—AN APPRECIATION

The Philadelphia Ledger declares that the Medical Society of that county estimates that in free services (and forgotten bills) it contributes \$10,000,000 to the indigent sick or those who "neglect" to compensate the medical fraternity for treatment. This is in addition to the enormous amount of work done in hospitals and dispensaries.

The medical profession of our country have by no means escaped their full responsibility in relation to the prevailing depression and perhaps have aided to a greater percentage than almost any of the other callings. We are confident that our own doctors are not deaf to a single plea of patients and those of our citizens needing medical attention, because there was no compensating fee in sight or even in prospect.

Every Evening notes this reflected light on the invaluable services in such an emergency as has come upon us, simply for the purpose of informing the community that the contributions of the doctors of Wilmington are perhaps greater, in relation to their incomes, than that of any other class of citizens.

We have yet to hear of a single instance where a Wilmington physician refused his services because of the poverty of the ailing, but personally we know of our medical practitioners responding first to the urgent call of an indigent sufferer even while less severely afflicted, well-to-do patients waited.

Such service counts big and most worthily in a period like the present when so many of our people are without money and who might suffer severely but for our generous healers of their ills.

Even in more prosperous times our doctors give freely of their skill to those unable to pay—and, too, for many who are, but who do not habitually pay their doctor bills. Just now their incomes are as much reduced for the



reason that there apparently is less physical ailment than usual, and because the sick turn more to other sources of healing.

Doctors, however, are contributing their skill generously to those who are without means, but perhaps like the doctors of other cities may object to gratuitously treating people who have money and will not part with it if possible to keep their pockets closed against such claims.

Our medical men have given generously, indeed, to those in need and if their names do not appear large on cash contribution lists it is not to be thought that they are side-stepping their share of the community's responsibility.

### ILLINOIS HAS BEEN ALERT IN LEGISLATIVE PROTEST AGAINST CORPORATIONS PRACTICING MEDICINE

#### THE BAR HAS DONE BETTER FOR ITSELF IN PROFESSIONAL PROTECTION

The justice of a law inhibiting corporations from practicing medicine has been up for demonstration more or less continuously before the legislative body of the State of Illinois by Illinois doctors for twelve years.

Few lines of legislation have been more urgent. None is more pressing now. Of no active economic condition are physicians more acutely aware.

Failure met repeated efforts to secure the desired legislation. This is not necessarily calamitous. The writer continues convinced that if legislation now on the statute books can be and is enforced that the laws already enacted are sufficient. As in many other instances it is enforcement of the existing statutes rather than the enactment of new laws that is indicated. And enforcement, there is the rub.

For several years this has been said repeatedly in the editorial columns of the ILLINOIS MEDICAL JOURNAL. Enforce the legislation we have now and stop the practice of medicine by corporations.

Among the active measures taken by doctors in Illinois to prevent corporate practice of medicine may be mentioned;—

Senate Bill No. 362 introduced in 1921 by the late Senator Wheeler;

Senate Bill No. 291 introduced in 1927 by Senator Mason;

Senate Bill No. 231 introduced in 1929 by Senator Searcy of Springfield.

Let us look to the fate of these bills.

Senate Bill No. 362 was tabled in the committee on Public Health and Hygiene. Remembered very well is this hearing in that a nationally prominent lawyer and a member of the Board of the Public Health Institute appeared in opposition to the bill. He became quite heated in his arguments against the bill and told the senators "that it did not make any difference to his organization whether they passed the bill because even if it became a law they would not pay any attention to it." He probably knew his committee for the Bill was tabled.

As to bill No. 291 we worked very hard on it and had it reported out favorably from the committee and it was on the third reading of the Senate before the opponents had it tabled.

As to bill No. 231 similar to the preceding bills that Senator Searcy introduced this bill was also tabled in the committee.

For several years it has been the editor's intention that we do not need a law to deny corporations the right to practice medicine.

Emphasizing the statement that enforcement of current statutes would inhibit corporations practicing medicine let attention be called to the fact that the Medical Practice Act specifically sets forth exactly who may practice medicine in this state, item by item, and the word "corporation" is not included in it. This would indicate clearly that we do not need a law but rather an enforcement. But how can you enforce a law if attorneys, practicing barristers, supposedly executives and elucidators of the law, calmly inform the men that make the laws that they as attorneys and the bodies they represent do not intend to pay any attention to the laws!

This you will note was the comment made by a lawyer and a member of the board of the Public Health Institute when Senate Bill No. 362 was up.

We have already instituted quo warranto proceedings to test legality of corporations practicing medicine in Illinois. This was done some six months ago and the matter is in statu quo.

About a year ago the Supreme Court of the State of Illinois handed down a decision that had been before them for several years and that denied the banks the right to practice

law. That all lawyers do not think like the Public Health Institute representative is indicated by the steps that lawyers have taken to protect the individuality and rights of their own profession in the Illinois statute prohibiting corporations from Practicing Law passed by the General Assembly of Illinois in 1917.

This excerpt from the act is taken from Section 234 of Chapter 32 of Cahill's Illinois Revised Statutes:

Be it enacted by the People of the State of Illinois, represented in General Assembly: It shall be unlawful for a corporation to practice law or appear as an attorney at law for any reason in any court in this State or before any judicial body, or to make it a business to practice as an attorney at law for any person in any of said courts or to hold itself out to the public as being entitled to practice law or to render or furnish legal services or advice or to furnish attorneys or counsel or to render legal services of any kind in actions or proceedings of any nature or in any other way or manner to assume to be entitled to practice law, or to assume, use and advertise the title of lawyers or attorney, attorney at law, or equivalent terms in any language in such manner as to convey the impression that it is entitled to practice law, or to furnish legal advice, furnish attorneys or counsel, or to advertise that either alone or together with, or by or through, any person, whether a duly and regularly admitted attorney at law or not, it has, owns, conducts or maintains a law office, or an office for the practice of law or for furnishing legal advice, services or counsel.

#### PAPERS FOR 1933 ANNUAL MEETING

The 1933 Annual Meeting of the Illinois State Medical Society will be held in Peoria, on May 16, 17, 18, 1933. It is the desire of those in charge of arranging the program, that the 1933 Meeting be an All Illinois Meeting, with only members of this Society to appear on the Section programs.

All members desiring to present a paper before any of the Scientific Sections should get in touch with the Chairman or Secretary of the Section at the earliest possible moment. All prospective speakers are urged to send title of

paper and an abstract, or description of same, so that it can be given the proper consideration by the Section officers. Case reports of interesting cases, well worked up, will also be given consideration, and in submitting same for the consideration of the Officers of Sections, a description of the case should be given. The 1933 Annual Meeting Program will be considerably different from those of past meetings, and will be one that will appeal to the average physician attending the meeting. It is desired that highly technical papers should be limited, and more practical subjects discussed. In each of the five Scientific Sections, one of the officers resides in Cook County, and the other, Down-State. All members in Cook County who would like to present a paper, or case report, should refer it to the Cook County Officer, and the Down-State men should refer theirs to the Down-State Officer. This arrangement will prevent unnecessary confusion and delay in arranging the programs.

For your information and convenience, we are giving the name and address of each Chairman and Secretary.

#### SECTION ON MEDICINE

Walter H. Nadler, Chairman, 8 South Michigan Boulevard, Chicago.

Richard F. Herndon, Secretary, Springfield.

#### SECTION ON SURGERY

Sumner M. Miller, Chairman, Peoria.

George W. Post, Secretary, 4010 West Madison Street, Chicago.

#### SECTION ON EYE, EAR, NOSE AND THROAT

Frank J. Novak, Jr., Chairman, 30 North Michigan Blvd., Chicago.

George S. Duntley, Secretary, Macomb.

#### SECTION ON PUBLIC HEALTH AND HYGIENE

John W. H. Pollard, Chairman, 1806 Maple Avenue, Evanston.

J. Howard Beard, Secretary, Urbana.

#### SECTION ON RADIOLOGY

P. B. Goodwin, Chairman, Peoria.

Robert A. Arens, Secretary, 2839 Ellis Avenue, Chicago.

It should be remembered that the number of papers which can be accepted for each program is limited, and in the selection of same by those arranging the program, every effort will be made to select those papers which in the judgment of the officers, are best adapted for a well balanced program. It is hoped that



every member who desires to have a place on the 1933 Meeting Program, will get in touch with the proper Section Officer at an early date, using the above for their guidance.

### IN RECENT YEARS THE ECONOMIC STATUS OF MEDICINE HAS BEEN PRACTICALLY TURNED INSIDE OUT

Legislation that advocates a bureaucracy to control and dominate the members of the medical profession to the extent that such bureaucracy determines the personnel of a physician's clientele and the fee he may charge regardless of the qualifications obtained and the specially skillful service rendered spells the beginning of the end of scientific medical service for the people.

It is just as unamerican for a bureaucracy to determine the clientele as it would be to determine the clientele of a butcher, a baker, or a candlestick maker. There is no difference in the application of the principle.

The physical welfare of our people was never so well taken care of as now. Preventive medicine has made tremendous progress and is the outgrowth of work accomplished by the organized medical profession.

Unfortunately the medical profession is confronted with numerous enemies without and a liberal sprinkling of traitors among its own ranks. A great number of men and women who have been bitten by that fatal parasite, the upliftus putrificiens in the guise of uplifters, are seeking to eliminate the doctor by crushing his individuality, hampering initiative and hoping thereby to accomplish destruction of scientific medical progress, by attempting to divert the practice of medicine into untrained and incompetent hands, which will bring about, as it has done in other countries, the worst imaginable form of medical service.

The wolf at the doctor's door is about to catch by the throat the entire medical profession. Hidden under the cloak of State medicine, compulsory health insurance, national socialization of medicine and sundry other acknowledged offspring of radicalism and cheap politics, only a small percentage of physicians have guessed the evil for what it is.

Those doctors who are awake to the dangers threatening the profession, realize that unless

radical action is accomplished speedily, the doctor will find himself deprived of the privilege of continuing his present occupation.

In recent years the economic status of medicine has been practically turned inside out. Figuratively speaking the physician has become a civic nonentity. Politicians have arrived at the state where with their business eye they regard a physician as "being in the world but not of it." Neither politics nor "big business" has hesitated to take advantage of this condition. Considered an "easy mark" to begin with, these interests proceed to make us "the goat" and endeavor to classify us as the cheapest of cheap labor. For years the medical profession has furnished the most servile of hired men for corporations and the great insurance companies. Now the profession is in a fair way to serve them even more servilely as vassals of the state.

Three curses are operating to the detriment of the government stability at the present time, they are: autocracy, bureaucracy, and bolshevism. Not centralization of more power at Washington is wanted but decentralization of that now existing there would go a long way to help remedy existing social ills. The present trend towards centralization of power in this country is raising an army of politicians and bureaucrats all of whom must be supported by general taxation of the people.

As a result of increase of bureaucratic dictation Americans are today the most ruled and standardized people in the world, and we are building up armies of citizens to enforce all the laws; by and by we shall all be state and government employees, earning our pay by watching or spying on one another.

The tendency of the age is toward paternalism. Paternalism is doing for the man what he should do for himself. It is the continuation of childhood care for the adult. "Paternalism is the principle or practice of a government or governing bodies that undertakes to supply needs or regulate conduct of the governed in matters affecting them as individuals as well as in their relations with the state or governing bodies and to each other on the assumption that it can best determine and secure their highest welfare."

The bug is in the medical profession. The propaganda is seen creeping out in the advo-

caey of the wholesale treatment of the sick. The germ is in the corporation practice and so long as it was and is restricted it serves a purpose and has a place.

Job work in medicine does not get the best results. This is illustrated in government work. The work is done neither as well or as economically as in private practice of business. The weak link in the chain in job practice is the lack of personal responsibility.

## ILLINOIS STATE MEDICAL SOCIETY PHYSICALLY HANDICAPPED CHILDREN'S CLINICS

Conducted under direct management of local county medical societies.

1. Primal Unit, the County Medical Society, or if desired, a group of two or more adjoining or nearby County Societies.

2. Co-Operative Organizations—State Department of Public Welfare, State Department of Public Health, State Department of Public Instruction, and any other State Departments of Agencies which may desire to co-operate, Parent-Teachers Association, Dinner Clubs, Federation of Woman's Clubs, Local Nursing Units, and any other agencies desiring to aid in a co-operative way.

### THE PLAN

1. A staff of qualified clinicians is available to conduct the Physically Handicapped Children's Clinics. When desired by the local County Medical Society, a list of these clinicians will be sent to them by the Scientific Service Committee of the Illinois State Medical Society so that they may make their own selection.

2. The County Medical Society in arranging the clinics shall have the assistance of the Scientific Service Committee of the Illinois State Medical Society, or any special committee that may be selected for the purpose.

3. The clinics should be conducted regularly, according to the desires of the local Society or Societies, and if possible should be conducted at a hospital in the community where the clinic is to be held.

4. The actual arrangements for each clinic should be made by the local County Medical Society, or group of Societies.

5. A list of physically handicapped chil-

dren in each county has been made available through a resolution passed by the Illinois Legislature ordering a survey in each county to get a complete list of all such cases. The survey has been completed, and the list of each county can be procured by the local County Medical Society desiring same, by applying to the Scientific Service Committee, a sub-committee of the Educational Committee, Illinois State Medical Society, 185 North Wabash Ave., Chicago.

### THE CLINIC

1. Each patient should be regularly admitted to the clinic and given a number, which number is retained for that patient for subsequent clinics.

2. All pertinent data concerning the case should be submitted by the family physician, and should include a history of the disability itself, family history, economic conditions under which the patient lives, etc.

It is most desirable to insist on all actual indigents bringing a statement of either economic condition from a supervisor of charities, township supervisor, or some other designated officer, in addition to statements from the family physician.

3. Patients able to pay a moderate, or even small fee for services rendered at the Clinic should do so, getting away from unnecessary pauperization.

4. It is always desirable to have visiting, community welfare, or Public Health nurses present at the clinic if same are available in the community.

5. The family physician of each patient should be urged to attend the Clinic, so that he will be better able to carry out the desired after-treatment.

6. Treatments prescribed or plaster of paris casts may be applied at the time of the clinic by the family physician, or in his presence, so that the suggestions of the clinician may be carried out properly.

7. A complete record of each case with the suggestions for treatment made by the Clinician should be made during the Clinic, and later written up in detail, a copy being retained by the Society or at the Hospital as desired, and one copy for the family physician.



A third copy can be made and given to a nurse, for follow-up visits if desired.

8. All patients referred to the Clinic should be assigned to a definite physician, if they have no regular family physician or any preference, in order that they may receive the proper after care.

9. It is always advisable for nurses, or someone designated for the purpose, to follow up each case, calling at the home of the patients soon after the Clinic to see that they desire to carry out the orders of the Clinician. Similarly, all patients should be notified before the Clinic so that they may appear at the proper time.

#### FINANCING THE CLINIC

1. The Illinois State Medical Society assumes no financial or other responsibility for the management or condition of Clinics.

2. It is recommended that the necessary financing of Clinics be managed by the co-operative organizations, which can be done in many ways, such as holding card parties, charity balls, rummage sales, home talent plays, etc., and possibly through such assistance as may be procured from civic or township organizations.

3. Arrangements should be made to pay promptly, the traveling expenses of any visiting Clinician. The Clinician should be given some modest remuneration for his services; such expenses and such fees can come from the funds collected for the operation of the Clinic.

#### THE RECORDS

The records of each case coming before the Clinic should be kept in cumulative form, in individual folders arranged for the purpose. They should include:

- a. Patient's name, age, address, number, and name of the parents.
- b. History—past, present, family, etc., in detail.
- c. Examination records with all findings, all subsequent records of progress, suggestions made for the care of the patient, and all other pertinent data should be added from time to time.
- d. Special examinations, including x-ray films, should be made a part of this cumulative record.

#### AUXILIARY NEWS

During the past several years Mrs. T. O. Freeman, Mattoon, Illinois, immediate past president of the State Auxiliary, has endeared herself to the many members throughout the State, not alone for her many and excellent accomplishments as head of that fine group, but her charming and warm personality has won many dear friends and admirers.

All of these dear friends and close associates in the Auxiliary feel more than unusually sympathetic on learning of the passing of Dr. T. O. Freeman, and they extend to Mrs. Freeman a tribute of sincere sympathy and friendship.

There will be held in Chicago on November 18th a Board Meeting of the Woman's Auxiliary to the Illinois State Medical Society. Mrs. E. W. Mueller, President will preside.

The National Auxiliary will also hold their Board Meeting in Chicago, November 17th, and many of the Board members listed below will attend this meeting in Chicago.

The roster of officers and chairmen of standing committees follows:

President, Mrs. Walter Jackson Freeman, Philadelphia, Pa.

President-Elect, Mrs. James Blake, Hopkins, Minn.

Recording Secretary, Mrs. Sherman S. Hesselgrave, St. Paul, Minn.

Corresponding Secretary, Mrs. Henry F. Page, Philadelphia, Pa.

Treasurer, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

Vice-Presidents:

1st, Mrs. James F. Percy, Los Angeles, California.

2nd, Mrs. William R. Brooksher, Jr., Fort Smith, Arkansas.

3rd, Mrs. Arthur C. Christie, Washington, D. C.

4th, Mrs. Rollo K. Packard, Chicago, Illinois.

Directors:

One year—Mrs. Arthur B. McClothlan, St. Joseph, Missouri; Mrs. Arthur T. McCormack, Louisville, Kentucky; Mrs. Evarts V. De Pew, San Antonio, Texas; Mrs. Willard Bartlett, St. Louis, Missouri.

Two years—Mrs. Joseph Hume, New Orleans, Louisiana; Mrs. Joseph A. Pettit, Portland, Oregon; Mrs. J. Ralston Wells, Daytona Beach, Florida.

STATE CONVENTION, Peoria, May 16-18, 1933.

NATIONAL CONVENTION, Milwaukee, June 12-16, 1933.

Mrs. F. P. Hammond, Chairman  
Press and Publicity.

## MEDICAL ADVERTISING SOLICITOR WANTED

The Illinois Medical Journal desires one or more advertising solicitors. Persons with advertising experience preferred. No guaranteed salary. Compensation on commission basis only.

Illinois Medical Journal,  
6221 Kenmore Ave., Chicago.

## THE PASSING OF MRS. WALTER JACKSON FREEMAN

Members of the Woman's Auxiliary will be sorry to learn that Mrs. Walter Jackson Freeman, President of the Woman's Auxiliary of the American Medical Association, passed away in Philadelphia, October 27th.

Mrs. Freeman was the daughter of Doctor William W. Keen of Philadelphia, author of "Keen's Surgery," and Emma Corinna Borden Keen. She graduated from Vassar College in 1889 and was married on November 3, 1892 to Walter Jackson Freeman of Philadelphia, later Professor of Laryngology in the Polyclinic, now the Graduate Medical School. She was prominent in all civic activities, serving as Chairman of the South Philadelphia Woman's Liberty Loan Committee in the Third, Fourth and Victory Loans. She was executive secretary of the Jefferson Alumni Society for the year of 1922 and inaugurated the Jefferson Alumni Fund. The years from March, 1923 to May, 1925 were spent in Europe for the education of her youngest children. In January, 1926 she joined the newly organized Philadelphia Woman's Auxiliary and served as County Secretary, Vice President, and President, State President, Chairman of the Philadelphia Convention Committee, and then became National President Elect, entering upon her duties as President last June.

Her passing is a distinct loss to the Woman's Auxiliaries of the country.

The Woman's Auxiliary to the Illinois State Medical Society has joined with other state auxiliaries in a combined token of sympathy and condolence. The following telegram was also sent to Mrs. Freeman's family:

"The Woman's Auxiliary to the Illinois State Medical Society sends sincere sympathy. Our members have appreciated the thought

and energy Mrs. Freeman has devoted to the work of the Auxiliary. We will greatly miss the inspiration but will remember with gratitude the splendid work done by her for our Society."

Mrs. E. W. Mueller, President

Mrs. Phillip H. Kreuscher, Secretary

## SOCIAL INSURANCE IMPOSSIBLE TO ABOLISH WHEN ONCE ESTABLISHED\*

The worst feature of Social Insurance is the fact that when this parasite once gets its suckers well fastened into the vitals of a nation nothing short of either national bankruptcy, a dictatorship, or a revolution will be able to loosen its hold.

Germany which has had Social Insurance on its statute books the longest has for a considerable time been on the verge of bankruptcy. While other facts are operative, we believe that the billion dollars which Social Insurance costs the nation every year is one of the chief reasons why Germany is unable to make a satisfactory "come-back" to normalcy.

England is not much better off. The chief reason for England's present difficulties is the terrific burden of taxation which she has to carry. One writer says: "A complete understanding of the problems confronting England at the present time involves going back to 1909 when we had just adopted old age pensions and destroyed the foundations of thrift." In 1911 England introduced National Insurance when three per cent of its workers were unemployed. After twenty years of operation of the act, seventeen per cent of her workers are out of work. As a partial explanation for this condition let us cite just one example from among scores and hundreds that could be given. A manufacturer found that his orders were only sufficient to give work to all his employees four days a week so he called his workers together and told them the facts. The workers, however, insisted that they would work only three days a week in order that they could draw the dole for the other three days. An English writer commenting on this says: "It is a great mistake to worry about the much

\*Tenth installment of Dr. Edward H. Ochsner's articles on Medical Economics.



discussed abuses of the system. It is the system which is fundamentally wrong and abuse is inseparable from it."

To get an idea of the tax burden which England is carrying, we need but cite facts. In that country all incomes of seven hundred and fifty dollars per annum are taxed twenty-five per cent. Higher incomes carry an additional surtax. Increased taxes have increased the production-cost of practically all articles of manufacture and, as a consequence, have actually increased unemployment because English Industry carrying this extra burden has not been able to compete with other countries in the world markets. In spite of these burdensome taxes and in spite of the fact that living expenses had gone down eleven and one-half per cent, the recent labor government refused to cut the sick benefits ten per cent and put the nation to the expense and turmoil of a national election practically on this issue alone.

The countries just cited are not the only ones encountering similar difficulties. A recent newspaper article contained the statement that there are more than one hundred and fifty federal boards and commissions in Washington each with three or more members drawing salaries and each with a bevy of clerks most of them just drawing salaries. Many of these were created during the World War. When a few farsighted individuals remonstrated against the appointment of so many boards and commissions they were assured that they would all be abolished at the end of hostilities. It is now more than fourteen years since the signing of the Armistice but not one board has as yet been abolished.

Another illustration is the franking privilege to country newspapers. This privilege was extended to them when it was deemed desirable to disseminate news and information to rural inhabitants particularly to detached settlements. It was a wise and legitimate enactment at the time but now it is just a plain nuisance and yet no congressman would dare to suggest its abolition. It is costing the taxpayer and consumer a great deal of money and serves no useful purpose. A town of ten thousand and even fewer inhabitants usually has two and sometimes three local papers all enjoying this privilege. The local merchants are compelled to advertise in all of them, the

expense of which must of necessity be passed on to the consumers. Incidentally this favors the mail order houses to the detriment of the local merchant.

There are many reasons why it is almost impossible to repeal the laws governing such practices. One reason is that executives and legislators do not want them repealed because it reduces the power which they derive through political patronage. The more patronage the individual in office has at his disposal, the more difficult it is to dislodge him. Even today it is very difficult to defeat a public office holder with large political patronage, no matter how inefficient he may be, except by another who either already has large political patronage or who promises jobs to his supporters irrespective of their qualifications. Thus in many elections the voter is simply left to choose between two undesirable candidates. Already the number of payrollers has become so large and so politically active and influential that they yield great power in both political parties. If we then add compulsory health insurance we will add further thousands to the lists of our civil employees. Those who are not in government employ will be powerless to control government and their only function will be to pay the taxes which others impose upon them. Instead of increasing the number of government officials and employees, the ideal to be constantly kept in mind and striven for in this country is to permit the private citizen to perform all those functions that he can best perform and that make for independence, self-reliance, and strength of character and to have the government do only those things which the individual cannot do satisfactorily. We maintain that centralization in government and paternalism here already gone much too far and that Social Insurance would simply be another step in the wrong direction.

Another reason why it will be difficult to repeal such laws is the fact that men in the different services of the government do not dare to expose its faults for fear of being accused of disloyalty. Reports must be couched in the most mild and ineffective language possible and then they must not be released to the public but allowed to die as still-births in the departments. We all know what happened

to General Mitchell who dared to disregard these rules. Major-General Robert Alexander also tells in the introduction to his *Memoirs of the World War* just how this worked in at least one other instance.

In most countries which have Social Insurance such laws were first suggested and urged by welfarers, uplifters, and visionaries who unwittingly played into the hands of practical politicians. Even now few seem to realize that bureaucracy in a republic may become just as unreasonable, oppressive, and ruthless as a despotism.

It will be interesting to see whether we shall be able to profit by the experience of others or whether as a nation we belong to that class of human beings who can learn only by dire personal experience or from national disaster. (The next article will offer a number of counter-suggestions in place of Social Insurance.)

#### EDUCATIONAL COMMITTEE REPORTS PROGRESS FOR OCTOBER, 1932 PRESS SERVICE

- 1,017—Articles sent out to Illinois newspapers.
- 496—Regular press service.
- 27—Newspapers, monthly service.
- 31—Newspapers, meeting Franklin County Medical Society.
- 99—Newspapers, meeting LaSalle County Medical Society.
- 71—Newspapers, re meeting Livingston County Medical Society.
- 62—Newspapers, meeting McDonough County Medical Society.
- 58—Notices Tri-County Medical Society.
- 82—Notices Southern Illinois Medical Association.
- 22—Community newspapers, re meetings Branch Societies of Chicago Medical Society.
- 3—Chicago Association of Commerce, meetings of Chicago Medical Society.
- 66—Home Bureau Advisers, material on colds.
- Press articles written and approved on "A Common Tooth Trouble" and "Parrot Fever Warning."

#### RADIO

- 47—Radio talks given over WJJD, WGN and WAAF. All papers approved by Educational Committee before they were given.

#### SPEAKERS' BUREAU

- 46—Speaking appointments made for physicians before lay groups. Meetings represented, State Nurses Association, Women's Clubs, Parent Teacher Associations, Mothers' Study Clubs, High Schools, Teachers Institutes, Business and Professional Women's Clubs, Kiwanis Clubs, Lions Clubs.

#### SCIENTIFIC SERVICE

- 19—Physicians scheduled to present scientific papers before the following county medical societies:

Will-Grundy.  
DeWitt.  
Rock Island.  
McDonough.  
LaSalle.  
Livingston.  
Kankakee.  
Sherman Hospital, Elgin.  
Paris Hospital, Paris.  
McHenry County.

#### SPECIAL SERVICE TO COUNTY MEDICAL SOCIETIES

Lay Educational Programs sponsored by the Chicago Medical Society have been announced over the radio during the health talks given by representatives of the Illinois State Medical Society.

Announcements of these programs enclosed with all mail going from the office of the Educational Committee.

384—Postal cards sent to physicians announcing meeting of LaSalle County Medical Society.

160—Notices to physicians announcing meeting of Livingston County Medical Society.

#### MISCELLANEOUS

- 15—Package Libraries sent to physicians.
- 5—Moving Picture films secured for lay meetings.
- 1—Canti cancer film secured for county medical society.
- 415—Notices mimeographed for the Woman's Auxiliary of the Chicago Medical Society.

The Educational Committee for the third consecutive year has been asked to arrange two programs a month for the Pre-Medical Club of Central Y. M. C. A. College. A series of health lectures is being planned for Marcy Center, Chicago and another series of health programs for the Englewood Y. M. C. A.

JEAN McARTHUR, *Secretary*.

#### A SERIES OF FIVE LECTURES ON CANCER

A series of five lectures on cancer is announced by the Institute of Medicine of Chicago and the Cancer Research Committee of the Chicago Woman's Club, to be delivered by Max Cutler, M.D., Director Tumor Clinic, Michael Reese Hospital, in the Chicago Woman's Club Hall, 72 East Eleventh Street, Chicago. These lectures will cover the field of causation, prevention, early diagnosis, and treatment of cancer. The material presented will include in chronological order the historical landmarks in the progress of the knowledge of cancer, a description of recently discovered contributing causes, and a review of the modern treatment as practiced in the great cancer clinics of America and Europe. Special attention will be directed to the newer developments in the technic of roentgen ray and radium, and the results of the modern treatment will be shown and illustrated. The lectures will begin promptly at 8:15 o'clock and will last one hour.

Friday evening, November 4: CAUSES OF CANCER AND ITS PREVENTION.



Friday evening, November 11: Early Diagnosis of Cancer.

Friday evening, November 25: Surgical Treatment of Cancer.

Monday evening, November 28: Radiation Treatment of Cancer.

Friday evening, December 2: Results of the Modern Treatment of Cancer.

#### PARROT FEVER WARNING ISSUED BY PUBLIC HEALTH SERVICE

The United States Public Health Service advises all persons to avoid contact with recently shipped or acquired birds of the parrot family. Several cases of psittacosis, or parrot fever, are being reported in various parts of the United States. Reports of 5 cases and one fatality have recently been received from Minneapolis, Minn. Another case has been reported from Boise, Idaho. There have been 12 cases of parrot fever, with 6 deaths, reported in California between December 1, 1931, and February 10, 1932.

Upon the recommendation of the Public Health Service, the Secretary of the Treasury has recently issued an order amending the interstate quarantine regulations so as to limit the interstate transportation of birds of the parrot family by common carriers to those certified by the proper health authority of the State as coming from aviaries free from infection.

A medical officer of the Public Health Service at the invitation of the California State Department of Public Health, within the recent past made a careful study of the situation in California with reference to parrot fever infection and the breeding of birds of the parrot family in that State. Conclusive evidence was thus obtained which indicates that psittacosis, or parrot fever infection is present in some of the breeding aviaries of Southern California. Parrots and parrakeets from this source have probably been one of the important means of spreading the disease to other States. The cases occurring in Minneapolis and Boise were traced to California birds as well as previous cases this year reported from New York City and Oregon.

An outbreak of psittacosis or parrot fever occurred in the United States during the Winter of 1929-30. One hundred and sixty-three cases were reported at that time, with 33 deaths. Practically all of these cases were traced to association with recently acquired parrots and parrakeets.

#### ANNUAL MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

Announcement has been made that the American College of Physicians will hold its Seventeenth Annual Clinical Session at Montreal, with headquarters at the Windsor Hotel, February 6-10, 1933.

Dr. Francis M. Pottenger of Monrovia, Calif., as President of the College, has charge of the program of General Sessions. Dr. Jonathan C. Meakins, Professor of Medicine and Director of the Department, McGill University Faculty of Medicine, is General Chairman of local arrangements and in charge of the program of Clinics. Mr. E. R. Loveland, Execu-

tive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general business arrangements, and may be addressed concerning any feature of the forthcoming Session, including copies of the program.

### Correspondence

#### THE INDISCRIMINATE USE OF THE WORD "DRUG" WHEN NARCOTIC SHOULD BE USED

Eli Lilly Company, Indianapolis, Indiana  
October 24, 1932

To The Editor: Those of us engaged in pharmacy feel that the indiscriminate use of the word "drug" where "narcotic" or "dope" should be used is a reflection on an honorable business and profession and tends to degrade it in the minds of many lay readers. As defined in the National Food and Drugs Act, a drug is an article used for the purpose of curing, mitigating, or preventing disease in man or other animal.

News writers and headline writers frequently refer to "drug" addicts, "drug" fiends, and "drug" raids when they mean narcotic (or "dope") addicts, narcotic fiends, and narcotic raids.

There is no objection on the part of the pharmaceutical profession and the drug trade to the publication of the misdeeds or misadventures of "dope peddlers" or "dope addicts," but to describe them as "drug peddlers" or "drug addicts" does an injury, so we are asking all editors to help discontinue the practice of using the word "drug" where the word "dope" or "narcotic" should be employed. There are assurances from the editors of newspapers that the subject will have their attention.

The practice is widespread in medical and pharmaceutical literature. Nearly every one having to do with such publications has been guilty of this misuse of the word "drug," even those of us who are seeking a discontinuance of the abuse.

If the editors of the medical journals would use the word "narcotic" or "dope" instead of "drug" in news items of raids or convictions, and in the columns advertising treatment for narcotic addicts, it would be a material aid in correcting an objectionable practice. Your cooperation to this end is earnestly requested.

John S. Wright, Director

## Original Articles

### HERNIA OF THE LUNG (PNEUMOCELE)\*

Roentgen Study with Report of Traumatic Case

HARRY A. OLIN, M. D.\*

CHICAGO

Synonyms: Hernia of the lung, pneumocele, pneumocele and pulmonary hernia.

A protrusion of any part of one or both lungs through an abnormal opening into the normal boundaries of the thoracic wall is a true hernia. Usually the sac is covered by parietal pleura and may extend into any layer of the chest wall. When the hernia is fully developed, however, the sac is always covered by skin.<sup>1</sup>

Hernia of the lung is essentially a rare condition. A perusal of the literature and the text-books cite less than two hundred cases. It is nevertheless surprising that, with the great number of penetrating bullet wounds and crushing injuries of the chest occurring in warfare and in civilian life, lung hernia is not more frequent. In the South African War (1899-1900) Makins, in an extensive war experience, reported but one case, while Adams in the Russian Japanese War was able to find only five out of twenty thousand chest wounds.<sup>2</sup> We are indebted to Rolandus<sup>3</sup> who in 1499 published the first operative case.

The literature contains some cases of evisceration and prolapse of the lung, erroneously considered by the early writers as lung hernia. Up to 1800 only fifteen true cases of lung hernia were reported. To Morel-Lavellée<sup>4</sup> we owe the following classification:

1. According to location.
  - A Diaphragmatic
  - B Thoracic
  - C Cervical
2. According to etiology
  - A Congenital
  - B Acquired
    1. Traumatic
    2. Consecutive
    3. Spontaneous
    4. Pathological

Anatomical Factors: Most writers on this subject have enumerated the anatomical varia-

tions in structure of the chest wall, since the locations of the herniae have commonly developed at the weak sites. Added to this, one may include any weak spot in the thoracic wall, whether due to congenital defect or injury—called by most writers a “locus minoris resistentiae.” Long continued strain associated with increase of intrathoracic pressure is another factor concerned with the production of hernia. The weakened areas in the chest wall are, in front, the costal cartilages near the sternum, and posteriorly, the interspaces near the vertebrae. The anterior costal cartilages possess no external, intercostal muscles while posteriorly the internal group of muscles—the internal intercostals—extend only to the angle of the ribs. Herniation most commonly occurs anteriorly because of the “locus minoris resistentiae,” safeguarded by the pectoral muscles, affords insufficient protection, whereas the muscles of the back, represented by the latissimus dorsi, trapezius and rhomboidei, are much stronger and present a more powerful barrier. Superiorly, the excursion of the apex of the lung is limited by the dome of the pleura; while hernia here rarely occurs, when it does, it is due to the space between the scalenus anticus and the sterno-mastoid muscles which affords an area of lessened resistance. Congenital defects are usually located near the sternum but may occur in the apex of the chest, in the diaphragm, the muscles or the ribs.

Auler and Urbach, from a study of 85 cases, reported the relative frequency as follows: congenital 24, traumatic 47, and spontaneous 31 per cent.<sup>5, 6</sup> Montgomery and Lutz, in a study of 165 cases, reported in the literature, show figures which correspond very closely to those of Auler and Urbach with the following percentages: congenital 18, traumatic 50 and spontaneous 32. As regards location, the same authors, in a series of 78 cases, enumerate as follows: cervical 16 of which 10 were on the right side and 6 on the left, anterior chest wall 57 of which 34 occurred on the right side and 23 on the left, 5 were found on the posterior chest wall with 3 on the right side and 2 on the left.<sup>7</sup>

Congenital Pneumocele: Any defective development of the thoracic wall may give rise to a hernia. Hochsinger<sup>8</sup> regards the congenital type as only those occurring in the first weeks

\*Read before Section on Radiology. Illinois State Medical Society, Springfield, May 18, 1932.

\*From X-Ray Department, Woodlawn Hospital, Chicago.



of life. Because of the weakness of the anatomical structures in the apex of the lung and the extension of the pleural dome into the neck, this site offers the predilected location for herniation. Arrested growth of structures, composing the chest wall and sternal clefts in this region, predispose towards the formation of hernia. Intrauterine abnormalities due to pressure of the elbow against the fetal chest, amniotic bands, pressure from tumors as fibroids may give rise to defects of the thoracic cage. The pneumocele may appear many months after birth or at any time and difficulty may be encountered as to its congenital origin.

**Traumatic Pneumocele:** This type comprises the largest number and herniation may develop any time following an injury to the chest wall. It may occur in an old scar, whether due to trauma or that following operations as the Estlander operation. Penetrating and bullet wounds of the chest favor the greater incidence of herniation; next in frequency are crushing injuries of the chest wall from any cause. In the War of the Rebellion only 3 cases were reported. In twenty thousand chest wounds in the Russian Japanese War only 5 cases were cited. In the late World War no cases could be found. Because of the inherent elasticity of the lung, which causes it to contract and retract from the chest wall, when the intrapleural and intrapulmonary pressures become equal, herniation in these cases becomes a rarity. When pneumocele does occur, it is usually complicated by hemothorax and pneumothorax. Traumatic hernia may occur with no visible signs of external injury and crushing forces, falls from a height and non-union of fractured ribs may result in a "locus minoris resistentiae" which subsequently may develop herniation. Morel-Lavalée classified traumatic hernia as those occurring soon after injury and the consecutive type as those resulting later after an injury.<sup>4</sup> Most writers ignore this latter type, inasmuch as the consecutive group differ only in the time of appearance.

**Spontaneous Pneumocele:** Two factors must be present to produce hernia in this type; first the existence of a "locus minoris resistentiae" in the boundaries of the chest cavity, and secondly an abnormal increase of the air pressure in the alveoli of the lungs as either factor, per se, seems incapable of producing herniation.

Since no congenital or traumatic defect in the chest wall is present in this type, long-continued or excessive increased intra-thoracic pressure and strain force a portion of the lung through an area in the chest wall, weakened by its anatomical peculiarity. Pressure changes in the lungs are due to voluntary or involuntary contractures of the muscles of the thoracic cage, associated with varying degrees of closure of the glottis.

Abnormal increase in pressure changes may occur in paroxysmal cough as in chronic bronchitis, tuberculosis, whooping cough or lung suppuration, foreign bodies in the lung, etc., blowing wind instruments, violent muscular exertion as heavy weight lifting and during the course of labor. For example, Masoti<sup>9</sup> and Koennecke<sup>11</sup> report lung hernia following violent exertion in weight lifting; pneumocele following paroxysmal cough in tuberculosis has been reported by Smith and Johnstone.<sup>10</sup> Urbach<sup>6</sup> in a study of 26 cases of spontaneous pneumocele found the following distribution: supraclavicular 7, first interspace 6, second interspace 2, fourth interspace 1, fifth interspace 2, sixth interspace 3, seventh interspace 2, eighth interspace 1 and sternum 1.

**Pathological Pneumocele:** Some authors have reported lung hernia following disease of the thoracic wall as abscess of the chest wall and breast; also following lung abscess or lung suppuration or empyema perforating into the chest wall; also malignant tumors breaking through the chest wall; occasionally ulcerative tuberculosis will break through into the chest wall. Such conditions may destroy the chest wall, leaving only the skin and subcutaneous tissues present. Over such an area, bulging on expiration and cough may be present which may simulate hernia but the underlying condition is readily detected.

According to its location, pneumocele may be cervical, thoracic or diaphragmatic; the cervical type is most rare and the thoracic is by far the most common. Only one case of diaphragmatic lung hernia has been reported in the literature. It was described by Beale<sup>12</sup> following an injury to the diaphragm and perforation of the small intestine; the lung herniated through the diaphragm and a subphrenic abscess developed followed by general peritonitis; post mortem findings revealed the presence

of lung tissue in the subphrenic abscess, the portion of herniated lung was amputated by the diaphragm but no opening in the diaphragm could be found.

**Signs and Symptoms:** Generally speaking, there may be no symptoms, especially in the non-traumatic form. In some, pain localized over the herniation may be the first symptom; at times tenderness and pain persist especially those associated with spasmodic, unproductive cough which disappears when the hernia is cured. In some, no symptoms are present until the patient notices a bulging of the chest wall. In the acute, traumatic variety, the severity of the injury to the viscera may mask the symptoms. Later pain may be the most constant symptom during the development of the pneumocele and is aggravated by cough, deep breathing and muscular exertion.

If the hernia is associated with hemo- and pneumothorax, followed by infection, cough may be very painful and paroxysmal in character with expectoration of considerable amounts of pus, as in the author's case. Once the hernia is fully developed, requiring about a week in the reported case, pain ceases and the patient is unconscious of its presence during quiet breathing. However, if the hernia is reduced and strapped, even during a coughing spell the pain is considerably relieved. Fractured ribs and injury to the pleura and lungs may increase the pain. As a rule, hernia of the lung rarely becomes strangulated unless infection causes the formation of adhesions, making it irreducible.

On inspection, a bulging mass is visible which appears and disappears during breathing; *forced expiration*, muscular exertion and cough *increases* its size, whereas *forced inspiration diminishes* its size or a depression may be noted in the interspace. As a rule, it is readily reducible unless incarcerated or adherent from local inflammation. The hernia may vary in size from that of a small bird's egg to that of a baseball and is usually covered by skin. It may be round or ovoid in shape. On palpation, a soft, spongy, crepitant tumor is felt. The orifice of the hernia is bony or fibro-muscular; sometimes a bony irregularity may be noted. The finger may be inserted to the depth of the orifice, at the same time reducing the tumor. The percussion note is usually tym-

panitic and tactile fremitus is increased; auscultation depends upon pathology present; vesicular whistling and crepitant rales may be heard. If fluid is present in the sac, gurgling sounds predominate.

A palpable orifice, through which a smooth, soft, crepitant, reducible tumor appears under the skin, the size and shape of which varies with respiration, should make the diagnosis perfectly evident, although mistakes have been made.<sup>1</sup> In the author's case, subcutaneous emphysema was present in the soft tissues of the chest wall and its recognition will be dealt with later in the differential diagnosis.

**Conditions Simulating Hernia:** Among these may be mentioned subcutaneous emphysema, empyema necessitatis, lung abscess, lung suppuration and degenerative malignancy breaking through into the chest wall, tumors of the thoracic wall, abscess of the chest wall, T. B. caries of the ribs and gas bacillus infection. Bulgings, sometimes observed about the clavicle in tuberculosis with prolonged cough and emphysema, are not true herniae, neither are ulcerations of the chest wall from invasion of a T. B. process which exposes the lung and causes evisceration of the viscus. Subcutaneous emphysema may follow injury to the lung and pleura, rather widespread as occurred in the writer's case; some of these pockets of air in the subcutaneous tissues may coalesce and form bulgings in the chest wall; they yield crackling sounds when palpated and the air in them is readily displaced; in addition no changes occur with respiration, as in pneumocele. Gas bacillus infection may occur in crushing injuries of the chest and may cause a bulge in the soft tissues, but signs of infection characteristic of this condition may be recognized and the respiratory phenomena are absent.<sup>14</sup> To name any tumor of the chest wall would be sufficient to rule out this possibility. Chest wall abscess is likewise considered. A punctured wound, traumatic or otherwise, may cause subcutaneous emphysema; it sometimes follows paracentesis of the chest and influenzal pneumonia, spreading, in the latter condition, over the neck and abdomen. In empyema necessitatis a bulging, external tumor may simulate lung hernia; the tumor may increase in size or diminish during coughing or forced breathing. The presence, however, of crepitant lung tis-



sue, plus other signs of hernia and the respiratory phenomena will cause recognition of the true condition.

**Roentgen Observations:** The presence of a bulging mass, increasing in size and volume during expiration, reaching its maximum during forced expiration, cough and muscular exertion and diminishing in size during quiet breathing and forced inspiration, may be noted with precision by a thorough fluoroscopic study of the chest and is considered pathognomonic of pneumocele. The tumor may be grasped in the hand and the contents of the sac reduced with the examining fingers holding the mass in place, providing there are no adhesions or incarceration to cause an irreducible pneumocele. The orifice of the hernial cavity may be felt as well as its borders while the examining fingers penetrate the cavity depth. In the lateral position, on the affected side, the respiratory phenomena are best observed; sometimes the obliques will bring out more bulging of the herniation. The lateral, recumbent position with the affected side up will also confirm the other positions. Antero-posteriorly the sac may be noted by a zone of increased radiance once the location of the pneumocele is determined. Of course fluid in the sac is readily determined by a change of fluid level varying with the position of the patient. Other pathology will be noted as fluid in the pleural cavity, fluid and air or areas of mottling as in tuberculosis. The excursion of the diaphragm on the affected side may be diminished or absent if pleural fluid is present. Later, as in traumatic pneumocele, in healing the diaphragm on the affected side may be elevated. The position of the heart and mediastinum remains unaltered unless fluid or, later, pleural adhesions cause these changes. Usually the hernial sac is located between the ribs and near the sternum anteriorly although it may occur anywhere in the chest. Cough and muscular exertion should be performed by the patient during fluoroscopy to study its effect on the hernial protrusion. The lung may be partly compressed in the sac if there is sufficient fluid present to cause compression.

Roentgenograms should be taken in the following positions:

A. Antero-Posterior.

B. Lateral Recumbent—affected side up.

C. Lateral, of affected side.

1. Quiet Breathing

2. Forced Expiration

3. Forced Inspiration

D. Postero-Anterior—if sac is in posterior chest.

E. Oblique—anterior or posterior, depending upon location.

The thought has occurred to the writer that the introduction of lipiodol into the lungs and into the herniation may add information not otherwise obtainable. Since there has been a recurrence of the pneumocele six months following injury (in the author's case) an attempt will be made to carry out this idea.

My thanks are due to Dr. A. J. Brislen for his kind suggestions and the privilege of reporting this case; to Dr. Carl Hedblom, to whom I cited the history of the case and who examined the Roentgenograms and likewise to Dr. Jas. G. Montgomery of Kansas City for his expression of opinion by correspondence.

**Conclusions:** A classification of lung hernia is cited with the anatomic considerations. Briefly the physical signs and symptoms are enumerated. Finally the Roentgen signs as observed by fluoroscopic study and Roentgenograms are mentioned and evaluated. Because of its extreme interest and rarity, the following case record is cited.

Case 1. No. 13124; W. N.; male; age 42; occupation mechanic; admitted to Woodlawn Hospital, 9/30/31; service of Dr. A. J. Brislen; admitting diagnosis, Crushing Injury Right Chest.

On 9/27/31, while driving his automobile on a mountain road, to avert a collision with an automobile truck, struck a culvert, the car turning completely over and the steering wheel striking his right chest below the clavicle. Severely injured, he was taken to a neighboring hospital for first aid; he left the hospital and made a fourteen hour railroad journey to Chicago to the home of a relative and was admitted to the Woodlawn Hospital on the afternoon of his arrival, 9/30/31.

**Physical Examination:** Male 42; weight about 140 pounds; in extreme pain in a crouching position and grunted with each respiration; face a dusky hue; respirations 32; temperature 101.4; pulse 108; white blood count 15,750. Subcutaneous emphysema in a marked degree was present from the lower jaws to the iliac crests; in the proximity of the third anterior rib was a small superficial wound, 2.5 cm. in length, on the anterior chest wall and a contused area, 5.0 cm. in diameter. The right, second, intercostal space anteriorly was depressed but bulged somewhat on expiration. Respirations were somewhat superficial and labored and, when deeper, dyspnea and excruciating pain were

present. Cough with expectoration of a thin mucopurulent secretion mixed with blood was present. The patient appeared poorly aerated, although no distinct cyanosis was present.

Chest: Right thorax painful to palpation and percussion, particularly in front; dullness in the lower half of the right chest, back and front, with absence of fremitus; a very distinctly tympanic area, most marked between the anterior and posterior axillary lines, superimposed on the dull area, was noted. On auscultation, breathing sounds were bronchial in character and intensified and most marked over the right, upper anterior thorax, where numerous moist rales were heard. Breath sounds were absent over the lower half of the right chest (posteriorly).

X-ray Examination, 9/30/31: Upper Thorax: There is definite pathology involving the entire right chest with the exception of the extreme apex which shows marked infiltration of the soft tissues with air. The soft tissues of the anterior chest wall and in the region of the axilla as far down as the tenth rib show cutaneous emphysema. Owing to the scoliosis in the lower dorsal vertebrae to the left, much of the shadow of the right heart is seen but the heart is, however, in its normal position. There appears to be angulation of the second to the fifth ribs, inclusive, in about the anterior axillary line in comparison with the corresponding areas of the left side; this is indicative of fracture. The lower three-fourths of the right chest is occupied by a dense, homogeneous shadow through which are seen irregular areas of air mingled with areas of emphysema in the soft tissues of the chest wall. This shadow obliterates the diaphragm and the costo-phrenic angle.

Lower Thorax: The emphysema has invaded the soft tissues of the left lumbar region. There is quite marked scoliosis in this region which causes deformity of the lower ribs but there is no evidence of any fracture.

Summary, Lower Thorax: Multiple fractures right anterior ribs; fluid right pleural cavity; injury right lung; cutaneous emphysema right chest wall; traumatic pneumonia right lung; old scoliosis. Lower Thorax: Cutaneous emphysema.

From these findings the following diagnosis was made:

1. Contusion and small lacerated wound right anterior chest wall with destruction of some of the intercostal tissues at the second and third ribs.
2. Multiple fractures right anterior ribs.
3. Injury to right lung, inducing bronchial fistula, open pneumothorax and hemothorax.
4. Subcutaneous emphysema extending from lower jaws to the iliac crests.
5. A bulging mass, right anterior chest, which condition proved to be one of the most novel and interesting of his injuries of which more will be said later.

Course and Progress: The dyspnea and the chest pain improved after a few days. The cough persisted, though better controlled after the first few days. The hemoptysis gradually subsided until about the fifteenth

day it ceased to be a factor. The expectoration varied from purulent, blood tinged to clear mucus through the subsequent course. During the first week the bulging in the region of the second and third ribs increased in size, attaining approximately the size of a baseball, growing smaller with inspiration and exceedingly tense and larger with expiration and with cough. During quiet breathing, there was noticed a depression in the region of the hernial sac. The examining finger, when introduced, penetrated a depth of about 3.5 cm. The mass could be grasped and easily reduced and held in place; it felt soft, consistent, crepitant to the touch and the fluid could be displaced. The borders of the orifice could readily be felt and consisted of the edges of the costal cartilages; through the orifice the pulsion mass, covered by skin, could be made to appear and disappear with respiration. Full expiration and cough caused the mass to assume its largest size. It was noticed that this maximum size could also be attained when the patient used muscular exertion as reaching out of bed for a glass of water or pulling himself up in bed with his arms over his head. The herniation was tympanic in note and harsh breathing could be heard with whistling, crackling rales. No pain was felt during manipulation of the hernial sac at this time.

A pad of the hernial type was strapped over, compressing the hiatus between the second and third ribs, with a visible improvement in comfort to the patient. Irregular temperature of a septic type persisted through the six weeks of hospitalization, declining during the last ten days to a practically normal temperature.

The white corpuscles ran as follows:

October 1.....	15,750	October 18.....	12,100
October 5.....	25,800	October 21.....	10,250
October 8.....	28,550	October 26.....	11,350
October 12.....	18,150	October 29.....	17,075
October 15.....	19,100		

In connection with the W. B. C., it may be well to note the fact that an aspiration of 950 cc. of pus with the replacement of an equal amount of air was done on October 22, at the time of the lowest white count. The laboratory report on this pus is as follows: "Direct smear shows numerous pus-cells, no organisms. 76 hour incubation shows no growth—sterile."

X-Ray Examination, 10/12/31: Roentgen examination of the chest reveals the lower one-half of the right chest occupied by a dense, homogeneous shadow obliterating the ribs, diaphragm and costo-phrenic angle and showing a definite horizontal level. With agitation, definite fluid waves can be seen. Just above this level is an oval shadow of rarefaction which corresponds to the bulging air pocket in the anterior chest wall. With the patient in the right, lateral, recumbent position a plate reveals considerable pneumothorax with three definite fluid levels—the one of the pneumothorax, the second the pocket of air and fluid on the anterior chest wall and the third a pocket of air and fluid beneath the second portion of the sternum. Lateral views at forced inspiration and expansion of the chest wall causes diminution in size of the air pocket on the anterior chest wall; with forced expiration of air the chest is contracted, the external pressure relaxed and the air pocket in the anterior chest wall *bulges*. The



area of interstitial emphysema seen in the soft tissues of both necks, the anterior chest wall and the abdomen has considerably diminished since the first examination. It is difficult to establish the communication between the pockets of air in the chest wall and the pneumothorax.

Summary—Diminution of interstitial emphysema; large hydro-pneumothorax; localized pocket of air and fluid on right anterior chest wall in the region of the second and third ribs; pocket of air with fluid behind the mid portion of the second piece of the sternum; bulging pocket right anterior chest wall—hernia of the lung.

X-Ray Examination, 11/2/31 (Thirty-fourth day in hospital): Reexamination of the chest reveals an increase in the homogeneous shadow of the right chest from the second anterior rib to the base, obscuring the diaphragm, lower ribs and costo-phrenic angle. The amount of the pneumothorax in the pleural cavity has diminished although there is an increase in the amount of fluid in the chest at this time. The pocket of air beneath the right clavicle on the anterior chest wall has considerably diminished and is now seen along the anterior wall of the chest. The pocket of air behind the sternum is likewise considerably smaller.

Summary—Increased, right pyo-pneumothorax; interstitial emphysema along the anterior chest wall; hernia right lung.

On this report the patient was sent to the operating room, November 4, for thoracotomy which was started. The patient expectorated a considerable quantity of purulent material on the table. Aspiration through the sixth, seventh and eighth intercostal spaces yielded no fluid. Because the percussion note was tympanitic and no fluid could be obtained at this time, the operation was discontinued and the patient was returned to the ward. It was felt that the patient, through the bronchial fistula, had coughed up most of the fluid in the pleural cavity since repeated attempts at aspiration obtained no fluid. (Dr. A. J. Brislen)

The temperature gradually subsided and the general condition and cough became much better. November 11—the forty-third hospital day—the patient left the hospital with a temperature of 99, pulse of 110 and respirations of 20; in good general condition.

X-Ray Examination, 11/24/31: Reexamination of the chest in comparison to that of 11/2/31 reveals a complete absorption of fluid in the right pleural cavity with almost complete expansion of the entire right lung with the exception of the right base, the diaphragm of which is still elevated but shows a fairly good excursion, although not as deep as on the left side. The several pockets of air and fluid, seen on the previous examinations, have disappeared. In the right chest there is still some irregular mottling at the base, residual of the infection, associated with thickened pleura. The markings as a whole are accentuated with a band of thickened pleura seen in the third right anterior interspace. The trachea and heart are in their normal positions but the mediastinal shadows show definite root thickening which is undoubtedly associated with the previous pyo-pneumothorax.

Summary—Obliteration of several pockets of air and fluid; complete absorption of interstitial emphysema; restoration of expansion of right lung; residual pathology right base with thickened pleura; hernial sac absent.

Physical Examination, 11/24/31: Examination revealed a good respiratory sound and resonance down to the region of the sixth rib in the axillary line and the eighth rib in the posterior scapular line; coughs rarely; has been going out of doors for the past week; appetite good and general strength returning. Seen last, 11/30/31; no complaints; sent back to resume work in a garage. (Dr. A. J. Brislen.)

Binney is of the opinion that lung injury by sudden pressure or rupture by the sharp end of a fractured rib will usually cause hemoptysis and some degree of pneumothorax or both. If pneumothorax is present, sooner or later signs of cutaneous emphysema of the chest wall may appear.<sup>15</sup>

Discussion: The noteworthy feature in this case was the presence of a protruding mass or bulging of the anterior chest wall, the size of a baseball, in the region of the second and third ribs, the nature of which will be discussed later. The mechanism of such a crushing injury becomes interesting and one is puzzled to learn the extent of damage to the thoracic viscera. Haemoptysis from the third to the fifteenth day until it gradually subsided, associated with attacks of a violent, persisting cough and the expectoration of sticky, yellow, tenacious material demonstrated the presence of a bronchial fistula which, with the bulging chest mass, gave proof of the presence of an open pneumothorax and a hemothorax. Emphysema of the skin or evidences of hemo- or pneumothorax are positive signs of a fracture of the ribs.<sup>16</sup>

The multiple fracture of the ribs evidently tore the lungs and pleura to such an extent as to cause hemorrhage into the pleural cavity and allowing the escape of air from the injured lung into the subcutaneous tissues of the right and left neck, chest wall and abdomen. After a lapse of six or seven days the hemorrhage ceased and the rent in the lungs became sealed with pleural exudate. With laceration of the soft tissues of the anterior chest wall, the pleura protruded through the opening in the chest wall only covered by skin and a thin layer of superficial fascia.

With the attending surgeon, I was called to the bedside of the patient at the second week to observe the phenomena of this bulging mass

with reference to respiration and exact location (although I previously had examined the patient several times under fluoroscopy and had made plates in various positions on each occasion). Palpation revealed a distinct hollow in the second rib due to loss of tissue. With inspiration the mass became smaller and after expiration bulged outwards, the size of a small orange. The presence of fluid was easily detected in this bulging mass as if the contents bore the presence of a viscid, sticky material and compressed, crepitant tissue.

How long the punctured lung by a broken rib may pump air with every respiration into the tissues, I am not able to determine, although on October 12, 1931—fifteen days after the accident—the emphysematous air was slowly being absorbed and considerably less than the day of admission. Since this mass was visibly affected by respiration, the pertinent question arises as to the nature of its contents. What were the layers of tissue comprising this mass? That this external chest wall pocket communicated with the pleural cavity is very evident from the nature of the phenomena occurring during respiration. One attempt at solution would explain this pocket as a purely external cavity filled with air and fluid, that, during the height of a full inspiration with the lungs fully expanded and the thoracic cage increased in volume to accommodate the increased lung volume, the external chest wall pressure would be sufficient to compress the pocket; inversely, at the height of a full expiration, with the thoracic cage and its contents fully compressed, would permit complete relaxation upon the cavity and cause it to bulge. This mechanism is fully brought out by Fig. I—a diagrammatic cross section of the chest—and is applicable to the cause and formation of subcutaneous emphysema and pneumothorax complicating rib fracture. On inspiration the lung expands and air rushes into the pleural cavity; on expiration the lung collapses and the rent in the lung tissue is closed so that withdrawal of air from the pleural cavity becomes impossible. This phenomenon probably occurred seven to ten days following the accident. That the mass connected with the pleural cavity is obvious, in that respiration changed its form and size. If no communication of the pocket existed with the pleura, no expansion and retraction would

occur other than moderate tension of an expanded chest against the wall of the cavity.

With a pyo-pneumothorax present, this bulge essentially amounted to a hernia of the lung. According to most text-books, hernia of the lung occurs most commonly in the antero-lateral part of the chest, and there may or may not be a layer of parietal pleura. In cases of long standing, because of the adhesions to the overlying tissues, the hernia may be irreducible. This hernial sac, however, was very readily reduced and held in place by a circular card board over its orifice. Lilienthal claims that in true hernia only a small amount of the lung extrudes and strangulation rarely happens as the lung tissue is so easily compressible.<sup>17</sup> To quote further, in a paragraph on Physical Signs: "There is a tendency for the tumor to decrease in size during *inspiration* and sometimes to protrude with ordinary *expiration*; cough will cause the tumor to become tense." This author, quoting from Sanerbruch, states that, if the reverse of this phenomenon occurs, namely bulging on inspiration and retraction on expiration, a complication of diaphragmatic injury with prolapse of abdominal viscera into the thorax and out through the chest wall may be suspected.

Comment: A severe crushing injury of the chest in a man of 42, complicated by lung hernia, three fluid level pockets, pyo-pneumothorax and extensive subcutaneous emphysema of the chest wall and abdomen results in apparent recovery, full reexpansion of the lung and closing of the hernial sac without operation. That the withdrawal of 915 cc. of pus followed by replacement of an equal amount of air and expectant treatment were sufficient to fully alleviate this patient in seven weeks following this extensive injury.

Since this writing, a message in January received from a friend of the patient, states that the bulging in the chest wall has recurred, although the patient is attending daily to his duties as an automobile mechanic. He has promised to pay a visit to his physician but has not reported up to the present time. A letter received from his wife, May 4, 1932, states that, "the bulging in his chest has given him no trouble at all and that the lump at first was the size of an English Walnut and very painful with the least pressure but now it is



flat and less tender." (Direct quotation from letter.)

## BIBLIOGRAPHY

1. Montgomery, J. G.; *Hernia of the Lung*; Journal Kansas Med. Soc., May, 1928. P. 168-171.
2. Norris and Landis; *Diseases of the Chest*; p. 611 4th ed.; W. B. Saunders and Co., 1929.
3. Rolandus; *De la Résection de Summot de Poumon*; Semain Med. 1891, Vol. XI, pp. 202-203; 1891.
4. Morell-Lavallée; *Hernies du Poumon*; Mem. Soc. de Chir. de Par., 1845-47; Vol. I, pp. 75-195.
5. Auler, J. M.; *Beitrag zur Kenntniss des Lungenbruche*, Inaug. Diss., Berlin, G. Schade, 1892.
6. Urbach, J.; *Über Lungenhernien*, Deutsche Ztschr. f. Chir., 1909, CII, p. 89.
7. Montgomery, J. G. and Lutz, H.; *Hernia of the Lung*; Ann. Surg., 1925, Vol. XXXII, p. 220.
8. Hochsinger; *Über Lungenhernie und Lungenabszess im ersten Kindersalter*; Wien. Med. Wehnschr., 1888, Vol. XXXVII, pp. 1305, 1340, 1378, 1405.
9. Masoti; *Notable Caso de Pneumocoele Espontaneo Originando por un Esfuerzo Violento*; Rev. de Med. y Cirug. Pract., Madrid, 1880; Vol. VI, p. 320.
10. Johnstone, Ben. I. and Smith, F. J.; *American Review of Tuberculosis*, Feb. 1928, pp. 182-191.
11. Koennecke; *Ein Fall von Strangulierter Lungenhernie (A Case of Strangulated Pulmonary Hernia)*; Klinische Wochenschrift, 6:73, (1/8/27.)
12. Beale; *On a Case of Hernia of Lung Through the Diaphragm*; Lancet, 1882, Vol. I, p. 139.
13. Olin, Harry; *Early Recognition of Gas Bacillus Infection by X-Ray*; Ill. Med. Jour., Oct. 1931.
14. Binney, Horace; *Acute and Traumatic Lesions of the Chest*; The New Eng. Journ. of Med., 205:610-615, 9/24/31.
15. Keen, Keen's Surgery, Vol. II, pp. 158-159.
16. Lilienthal, H.; *Thoracic Surgery*, Vol. I, p. 561; W. B. Saunders Co., 1926.

mode of egress of the air from the punctured lung into the subcutaneous tissues; H, cross-section of heart; C, fracture at costochondral junction without displacement. Pneumocoele or lung hernia develops by protrusion of lung through thoracic wall at site of triple arrow. (From Keen's Surg. Vol. I, p. 159, 1926.)

## DISCUSSION

Dr. H. H. Cole, Springfield: Hernia of the lung must be pretty rare, because I have seen very, very few of them and I have seen a good many lungs. The fact that the lung will follow a chest wall providing there is no external opening and providing there is no break in the visceral pleura is well known. Of course with a negative pressure inside the chest, which is a normal condition, the lung that is elastic will tend to retract away from any hole, and it seems to me that in order to have hernia there must be a break in the wall, and there must be some means of trapping the lung in that break.

I recall at the present time that Dr. Olin said no cases of hernia of the lung were seen in the last war. Perhaps a great many of them were seen, but were seen under such conditions and at such times we did not have a chance to report them. I remember having two in the wards at one time in which extensive shell fragments had torn away a portion of the chest wall, leaving the patient with open pneumothorax. The lung would protrude on cough and just the instant the strain was relaxed there was the opposite condition, retraction.

I recall one case where a rifle bullet passed through the chest in which a condition occurred which I should like to draw on the blackboard for you. When the patient coughed the lung protruded and then as the pressure was relaxed the sharp ends of the rib came together. I remember that case very distinctly because we removed an inch from the end of each one in order to get away from the danger of tearing the lung.

Recently I had a shot-gun accident in a patient seventeen years old. It was an extensive injury with an approximate area of three to five inches carried away in the side of the chest. There was a total and complete disappearance of about four or five inches of two ribs and two or three inches of the ribs above and below. We had to do a very wide debridement in order to get away from the shattered bone. The hole in the diaphragm was plugged with the top of the kidney, then the diaphragm was raised as high as we could reach and fastened to the chest wall in order to give us a closed area in which to work. After this the lung was maintained in collapse until healing took place, which we got, and the lung was pulled back up by Bottle suction until it stuck to the wall; then we went in and cleaned up the empyema. It was the toughest job I ever had to do, and one of the most lucky ones I've had. This patient now wears a pad over the area, but if he coughs there is quite a strong protrusion. Under ordinary conditions when he is not under strain, there is retraction and there is a depression you can put your hand right in. I think perhaps that could be classed as a hernia.

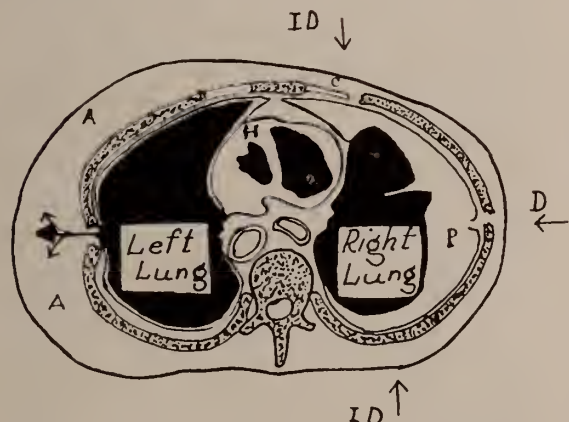


Fig. 1. CROSS-SECTION OF THORAX (DIAGRAMMATIC) TO SHOW MODE OF PRODUCTION OF PNEUMOTHORAX OR HEMOTHORAX AND OF SUBCUTANEOUS EMPHYSEMA AS A RESULT OF FRACTURES OF THE RIBS.

ID, The arrow accompanying these letters shows the mode of action of indirect force in producing fracture of the ribs; D, mode of action of direct force in producing fracture of the ribs; P, pneumothorax as a result of fracture of the rib and laceration of the pleura on right side; A, extensive subcutaneous emphysema as a result of puncture of a lung by the sharp ends of a fractured rib fragment; the triple arrow shows the

I personally have never seen congenital hernia of the lung. I have seen it in the diaphragm but in that case the lung collapses and usually becomes a fibrous mass without any lung tissue in it.

In the case reported I should like to ask whether there was a complete pneumothorax? My understanding is that there was.

Dr. Olin: There was a pneumothorax.

Dr. Cole: In that case I say the pressure from the trachea was transmitted through the lung directly into the chest cavity and you get a very much higher internal pressure on your cough under those conditions than you do when the lung itself is intact. That is really a hernia of the chest wall.

Dr. Harry A. Olin, Chicago: On the case I reported the injury occurred last September. The patient was written to in January, and the report given to me by a friend who said that he observed a little bulging mass during deep expiration, coughing, and so forth. I also received a letter from his wife the first part of May, in which she said the mass still bulged the size of a little golf ball, but was less painful. Of course, this patient had to resume work quite early, but from the nature of what he had, I feel quite certain that it must have been a lung hernia.

## FACTORS IN THE ROENTGENOLOGICAL DIAGNOSIS OF NON-OPAQUE FOREIGN BODIES IN THE BRONCHI\*

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It is well known that for years such men as Chevalier Jackson have warned us of the dangers of the overlooked foreign body. Cases in our own cities are known to have had negative Roentgenological diagnoses and yet have coughed up foreign bodies days or month later. Later examination of the films has demonstrated recognizable lung changes. It is, therefore, the purpose of this paper to call attention to a few of the more important factors in the Roentgenological diagnosis of foreign bodies in the bronchi and to correlate various apparently disconnected findings.

*History.* The history of the case to be examined will be of much importance whether it be positive or negative. One patient may deny any history of aspiration of a foreign body and yet will have a foreign body present in a bronchus, while another may give a history, suggestive because of suggestion by the examiner, and yet there may be no foreign body present. Cases of foreign body which have been treated as pneu-

monias for a week or two, have given no history or at least no positive history of aspiration.

The sudden onset of choking, while eating or while playing with small objects, is practically positive evidence of aspiration. Such an incident is usually followed by one or more symptoms, such as hoarseness, aphonia, croupy cough, wheezing and dyspnea, the severity of which depends upon several factors—the degree and extent of laryngeal or bronchial obstruction, the irritating properties of the foreign body and the mobility of the foreign body within the bronchial tree.

The time element is extremely important in the non-opaque foreign body cases. In this type we include those of vegetal origin, such as kernels of corn, peanuts, seeds, and those of animal origin, such as small bones. A very irritating vegetal foreign body may cause involvement or occlusion of one or more large bronchi within a period of four to six hours. On the other hand, a kernel of corn, with unbroken cortex, may be retained for weeks with the involvement of not more than one or two lobes.

*Physical Examination.* The physical findings by inspection, palpation, percussion and auscultation are important, particularly if made by one experienced in chest work, but time may be such an important element that a careful physical examination is impossible on account of the emergency. The Roentgenograms with history and one or two physical findings, must then be relied upon before bronchoscopy.

*Study of Opaque Foreign Body Cases.* To better interpret Roentgenograms of non-opaque cases, a study of the effects of metallic foreign bodies in the bronchi will yield valuable comparative information. Vegetal foreign bodies cause obstructive emphysema and obstructive atelectasis more quickly and more extensively than metallic foreign bodies of the same size. Therefore, the effects as evidenced by Roentgenograms will be similar whether the foreign body is metallic and opaque or non-metallic and non-opaque.

*X-Rays During Respiratory Phases.* In many Roentgenological laboratories and in many institutions, stereoscopic plates are made routinely. It is true that they reveal more information than a flat plate. If such plates, taken both at the end of expiration or at the end of inspiration, do not reveal enough information for a positive diag-

\*Read before Section on Radiology, Illinois State Medical Society, Springfield, May 18, 1932.



nosis, recourse should be taken to further exposures. A flat plate in the anterior-posterior position at the end of expiration, another at the end of inspiration and one in lateral position, would give more valuable information than the usual stereos.

A comparison can then be made of the findings at inspiration with those at expiration. The expansion or contraction of one side of the chest, narrowing of the intercostal spaces, fixation or depression of the diaphragmatic dome on one side, the exaggeration or obliteration of the cardio-hepatic angle, the position of the trachea and the mediastinum, are all basic in the interpretation of such Roentgenograms.

*Obstruction of Bronchi.* We know that any foreign body, whether of endogenous origin, such as tenaceous plugs of bronchial secretion, or of exogenous origin, causes a reaction in the bronchial tree by its presence. If the foreign body is small and only slightly obstructing, there will be little or no demonstrable evidence on the x-ray plate. Within a few hours, in cases of vegetal foreign body, or within a few days to weeks in metallic foreign body, X-ray evidence always appears. It is this evidence with which we are concerned.

Every foreign body lodged in the bronchi will of necessity cause either an obstructive emphysema or an obstructive atelectasis, or both conditions in different parts of the lung at the same time. Acute obstructive emphysema is usually the stage depicted early unless there is instantaneous complete plugging of a large bronchus. In the latter case, an acute atelectasis would develop as the air is absorbed from the affected lung.

*Acute Obstructive Emphysema.* If the patient is quite young a study of the case by Fluoroscopy is not of sufficient value to warrant the expenditure of the effort. In such cases x-ray plates will give the required information. A crying child or baby can be exposed at the end of the expiratory phase of the cry and again at the instant of deep inspiration. Lateral plates may be of value in very young children, but they are of more importance in older children and adults.

During *Fluoroscopy* in obstructive emphysema, the following phenomena may be observed:

(a) Both sides of the *chest* appear equally expanded at inspiration, but at expiration the involved side appears to remain more or less

filled with air, the degree depending upon the extent of lung involved and the amount of air trapped.

(b) The *intercostal spaces* appear equal at inspiration, but do not diminish in width on the involved side during expiration. This fact again depends upon conditions as expressed under (a).

(c) The *domes of the diaphragm* appear about normal during inspiration, but during expiration the dome on the involved side remains descended almost to the same degree as at inspiration.

(d) The *cardio-hepatic angle* appears normal or slightly exaggerated during inspiration in involvement of the lower right lobe, but during expiration does not become smaller.

(e) The *trachea* appears pushed toward the uninvolved side during expiration, but may appear nearly normal during inspiration.

(f) The *mediastinal structures*, during inspiration, appear nearly normal unless the emphysema is marked, but appear to be pushed toward the uninvolved side during expiration.

The x-ray films at the end of expiration, at the end of inspiration and laterals, are records of the main fluoroscopic findings.

*Acute Obstructive Atelectasis.* Depending upon the degree of irritation produced by the foreign body, the amount of bronchial secretions produced, and the size of the foreign body, the partial obstruction, more or less rapidly, becomes total. Air is absorbed from the involved lung. The following phenomena may be observed during *Fluoroscopy*:

(a) The diminution of expansion of the involved lung appears most marked during inspiration. During expiration both lungs may appear nearly equal if the degree of atelectasis is small.

(b) The *intercostal spaces* appear as under (a).

(c) The *domes of the diaphragm* may appear nearly normal during expiration, but the dome on involved side appears to descend very little during inspiration.

(d) The *cardio-hepatic angle* appears diminished or obliterated during expiration in involvement of the right lower lobe. This phenomenon may appear less marked during inspiration.

(e) The *trachea* appears to be pulled toward the involved side.

(f) The *mediastinal structures* appear to be

pulled toward the involved side, most markedly during inspiration.

It is to be remembered that compensatory emphysema occurs in the uninvolved lung. This is most evident in cases of complete obstruction of more than one main bronchus and in total collapse of one lung.

Two patients within the past six months came into the hospital with only the right upper and part of the middle lobes functioning. These showed extreme compensatory emphysema.

The x-ray films made at the end of expiration, at the end of inspiration and a lateral, constitute a record of the main fluoroscopic findings. It is the careful study of these variations in chest expansion, intercostal spaces, the positions of diaphragmatic domes, the cardio-hepatic angle, the trachea and the mediastinal structures, which permit us to have a better understanding of the suspected foreign body case.

*Dislodgment of Foreign Bodies.* In obstructive atelectasis a foreign body may actually be loosened or squeezed from its bed in a bronchus by changes in pressure within the lung. Occasionally we have had a patient who, after lodging a vegetal or bony foreign body for weeks or months in his lung, has coughed it up without any untoward sequelae. These rare cases fall within the 2 per cent. of foreign bodies which are recovered by being coughed up.

Case 1. Male, aged 47 years, had influenza about 11 months ago, shortly after a ruptured appendix operation. Occasional cough and expectoration of bloody secretion followed. During the past 4 months hemorrhages from the lung occurred, at times amounting to one-half cup. When patient would lie on involved side bleeding would start.

X-ray examination showed an obstruction of upper right middle lobe, with no apparent abscess. The suggestive diagnosis was obstruction of right middle main bronchus, due either to a tumor or a foreign body associated with granulations. A bronchoscopy was decided upon. The next day after consultation on the films, the patient coughed up a small bone with debris, fibrin, etc.

Occasionally foreign bodies will be coughed out of the involved lung into the trachea and then fall back into the normal lung. These cases are easily fatal.

Case 2. Child, aged 3 years, was treated for two weeks for what was thought to be pneumonia. Patient had had coughing spells and an irregular temperature, 100 to 103 degrees. Improvement toward the end of the first week was followed by higher temperature, weakness and much coughing during the second week.

Without warning, on the 15th day of the disease, a violent coughing spell developed and patient became markedly cyanotic. The pulse rate jumped to around 150 and respiratory rate to about 52.

Consultation and x-rays revealed a beginning collapse of the entire left lung. White blood count was 48,000. Twenty-four hours later, physical examination and X-ray revealed a total collapse of entire left lung, an atelectasis of the right lower and part of the middle lobes, and compensatory emphysema of right upper and middle lobes.

A diagnosis of foreign body was made before bronchoscopy. The foreign body, vegetal in origin and very irritating to the bronchial mucosa, was evident from the high white count and the fact that it had lodged in the right lower bronchus and had been coughed into the trachea and fallen into and completely plugged the left main bronchus. Then the parents remembered that the patient possibly had had a kernel of corn in its mouth two weeks before.

Bronchoscopy was performed. The left main bronchus was found collapsed and a kernel of corn removed from it. Thick tenacious purulent secretion was aspirated from the right lower and middle main bronchi. Before the patient had left the operating room, air filled the left lung and some air was present in the right lower. X-rays demonstrated the latter findings four hours later.

*Additional Factors.* In foreign body interpretations, there are many additional facts which must be borne in mind. There may be more than one foreign body present. If the case does not recover rapidly enough, another Roentgenogram may reveal evidence of a second foreign body.

A foreign body may shift from one bronchus to another and thereby change the symptoms and Roentgenological findings. Tenacious secretion, as much a foreign body as the actual offender, may be the cause of many peculiar irregularities in physical and Roentgenological findings.

It should be borne in mind that the Roentgenological evidence of acute obstructive emphysema is accentuated toward the end of expiration and that of acute obstructive atelectasis, toward the end of inspiration.

Case 3. *Obstructive Emphysema* due to metallic foreign body.

A girl, 15 years of age, aspirated a straight pin five days before admission to the hospital. It had not caused any discomfort. An early partial obstruction. Caused a mild obstructive emphysema as seen by X-ray. The pin was later removed by bronchoscopy. (Pins cause so little reaction in the bronchial walls that weeks or months or longer may elapse before marked lung changes become visible by Roentgenograms.)

Case 4. *Obstructive Emphysema* due to peanut.

Child, eight years of age, choked four days before admission while eating peanuts. A loud expiratory wheeze, physical findings and X-ray examination led



to the interpretation of acute obstructive emphysema, a "ball-valve" type of obstruction of the right lower main bronchus. At bronchoscopy a peanut kernel with part of the husk attached was removed from the right lower main bronchus.

This child, eight years of age, had a peanut in its bronchi for four days with only a partial obstruction. The bronchial reaction is not as marked at this age as it is in very young children.

Case 5. *Obstructive Emphysema* due to peanut.

Baby, sixteen months of age, choked 36 hours before admission. Spells of violent coughing followed. Physical findings and the x-ray evidence of an acute obstructive emphysema led to the diagnosis of a foreign body plugging the left lower main bronchus. A peanut was removed from this site at bronchoscopy.

Case 6. *Obstructive Emphysema* involving both lower lobes.

Child, aged 3 years, choked while eating an apple, about five hours before admission. Physical and Roentgenological examination demonstrated an acute partial obstruction of the right and left lower main bronchi, causing an acute obstructive emphysema. Because the family doctor had found involvement in the left lower lobe three hours before admission, the conclusion was reached that the foreign body must be on that side and not on the right. Bronchoscopy revealed an abundant thin secretion filling both lower main bronchi. A piece of apple was found plugging the left lower main bronchus.

Such a foreign body is so very irritating to the bronchial mucosa that the patient could drown in his own secretions within 18 to 24 hours.

Case 7. *Obstructive Emphysema* entire left lung.

Child, aged 4 years, aspirated a kernel of corn about 4 hours before admission. Examination then revealed an obstructive emphysema of the entire left lung and the mediastinum pushed to the right. At bronchoscopy a kernel of corn and much thin bronchial secretion was removed from the left main bronchus.

The reaction was considerable in this case considering the brief sojourn of the foreign body. As soon as the secretion would have flowed over into the right main bronchus and filled the lower branches, the x-ray evidence would have been considerably changed.

Case 8. *Obstructive Emphysema* of entire right lung.

Child, aged 2 years, while sitting on the floor, was found choking for no evident cause. The dad thought a nail was missing from the table. An hour later, x-ray revealed an eight-penny nail partially plugging the right main bronchus. At the hospital, an hour later, the obstructive emphysema was still more marked. The nail was removed by bronchoscopy. Almost at once the areation and the mediastinal structures were normal.

Case 9. *Obstructive Atelectasis and Emphysema* in same lobe.

A child, 2 years of age, had been treated for 10 days for what was supposed to have been pneumonia. Physical and Roentgenological findings demonstrated both an atelectasis and an emphysema in the right lower lobe. At bronchoscopy a kernel of corn and much tenacious bronchial secretion was removed from the

lower right main bronchus. At the end of 2 weeks the lower lobe was clear.

Case 10. *Obstructive Atelectasis and Emphysema* in different lobes simultaneously.

A child, 2 years of age, stumbled while eating peanuts, about 14 hours before admission. Two hours later breathing became difficult. The family doctor, on physical and x-ray examination, found pathology in the right middle and lower lobes. Ten hours after onset patient had a violent coughing spell and became cyanotic. Examination at the hospital 14 hours after the onset, revealed that the entire right lung was completely obstructed and the lower left lobe partially obstructed.

At bronchoscopy much secretion was aspirated from the trachea and main bronchi. After clearing the lower left main bronchus, a kernel of corn was removed. Air then entered this lobe. After aspiration of much secretion from the entire right main bronchus, air rushed into each lobe.

This is another case illustrating first, that vegetal foreign bodies are highly irritating in very young children; second, that the physical findings as well as the X-ray findings will vary with the pathology and, third that occasionally foreign bodies will shift from one bronchus to another thereby radically changing the pathology and, therefore, the physical and X-ray findings.

A large number of other cases might be summarized but they represent variations or complications of the types mentioned above.

#### CONCLUSIONS

1. A Roentgenological study of the effects of opaque foreign bodies should be made in order to better interpret similar effects caused by those which are non-opaque.

2. It is not advisable to make a negative X-ray report in a suspected foreign body case on one X-ray examination only. Bronchial changes in such cases may be rapid or slow but they are always definite.

3. All vague or undiagnosed chest conditions should have suspicion cast upon them and have foreign body ruled out.

4. The Roentgenologist is the right hand man of the Bronchoscopist. The latter cannot function without the former.

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#### DISCUSSION

Dr. Henry W. Grote, Bloomington: I know of nothing to add to this paper, but I would just like to stress the radiological field in the possibility of emphysema, also the point of lack of motility of the diaphragm on the affected side. Then also the repeated fluoroscopic examinations. The fact that so many of these examinations, or the great majority of them, are more or less a failure, is because of fear on the part of the child. If this is repeated two or three times, the child gets confidence and it is easier to make the diagnosis.

This is stressed because of the fact that non-opaque foreign bodies are so often diagnosed on negative findings. I do not think that in the average case a diagnosis should be made positively on non-opaque foreign bodies without the aid of bronchoscopy.

Another point that I would like to bring out is the possibility of the foreign body pneumonia being mistaken for infectious pneumonia.

I appreciate this paper very much. I am sorry to say that in nearly all of the films shown, regardless of where they are shown, I rarely see a good film demonstrating an emphysema. I wish that some of us could develop a technique to bring that out more clearly in these cases.

Dr. Watkins, Bloomington: I think that Dr. Sneller gave a very excellent paper. One point I think should be emphasized is the importance of the roentgenologist and the pediatricians and the internists. Probably a plumber could do the work of the endoscopist if he had the tools, but he could not find out the diagnosis from physical findings.

Dr. George Woodruff, Jr., Joliet: Dr. Sneller presented an excellent paper. One thing, of course, that is unfortunate, is that we have so few of these cases. The ordinary man doing ear, nose and throat bronchoscopy sees so few. The ideal thing would be to have one man in a community do this work, unless it is in a large community where there are enough cases. The same applies to the x-ray man. I think the x-ray man has to keep his hands in these cases to get the best results. These sort of cases should be handled by a bronchoscopist, x-ray man or internist who see these cases all the time.

Dr. Perry Goodwin, Peoria: I think one point that is important is the cooperation of the radiologist with the bronchoscopist. Dr. Sneller and I worked on quite a few of these cases, and as far as the radiologist is concerned, he does not see so many of those unless the throat man has them referred, and a good many of our cases have been indefinite, at the same time the symptom is not accounted for. We would read them for a possible non-opaque foreign body.

Another thing that should not be lost track of, and it came to my attention a few days ago, is when there was a history of a patient swallowing a pea or being choked on a pea. The patient was referred with the history of the pain on the right side, low down, with definite rales, and the area suspected was on the left side of the chest film. I think Dr. Sneller will bring that out in his discussion, that you may have a foreign body located in one bronchus and with a cough it will be shifted over to the other side and give you signs on the opposite side.

Dr. Charles D. Sneller, Peoria: It is very interesting in the history of non-opaque foreign bodies that many of these cases can be overlooked when there is apparently definite history, or on the other hand, when there is no history.

Frequently children choke on food or whatever they may have in their mouths. You never know just when there is going to be a lodgment of a foreign body somewhere, either in the esophagus or in the lung.

Vegetable foreign bodies can produce a simple picture early, but a little later the picture can be so complicated that you never think of a vegetable foreign body causing the symptoms. At least two of these selected cases illustrated that.

## PROGNOSTICATION IN HYPERTENSIVE ARTERIAL DISEASE.\*

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That hypertensive arterial disease is a serious and frequent source of disability and death is well known. The increased mortality among hypertensive individuals, in contrast to those with normal arterial tension, is clearly recognized by life insurance underwriters and others. Vital statistics reveal that the group of diseases designated by the inclusive term "cardio-vascular-renal disease" heads the list of causes of death today. It has been conservatively estimated<sup>1</sup> that approximately 140,000 people die annually in the United States as a result of hypertensive disease. In sharp contrast to such a pessimistic outlook for the hypertensive patient is the fact, frequently observed by all of us, that certain patients may live many years with little impairment of efficiency despite marked arterial hypertension. The problem of prognostication must be considered not only on the basis of prognosis of the group as a whole, but for individual specific instances. The patient has relatively meager interest in the fact that the average duration of life of hypertensive individuals is much curtailed; his natural interest is centered upon his own individual problem.

The individual prognosis in hypertensive disease must be based upon several factors, all of which are to some degree inter-related but which are also independently variable. As slightly more than half of the deaths attributable to hypertensive disease result from cardiac failure,<sup>2</sup> the factor of the cardiac reserve warrants careful consideration. Second among the significant factors is the status of the renal reserve. As successful curative therapy must inevitably depend upon etiology, the etiologic background must be considered; no two cases of hypertensive disease are necessarily due to

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the same forms of arterial injury. Certain etiologic factors are amenable to therapy whereas others are not. Of great significance is the degree of progression of the pathologic changes in the arteries; the extent of permanent irrevocable damage. Evidences of more or less extensive sclerotic changes in the arteries of vital structures such as in the cerebral and/or coronary vessels definitely affect the prognosis. Lastly, one must consider coincident complications and the effect of age.

The factor of cardiac reserve is of vital significance in every instance of hypertensive disease. It is a justified clinical concept to assume *a priori* that in every instance of long standing arterial hypertension some cardiac damage exists. Although there may be rare exceptions to such an attitude, they are so rare that far fewer errors will be made if this axiom be constantly kept in mind. The sources of cardiac injury in hypertensive disease are multiple. Of major importance is the abnormal and continuously increased burden of cardiac work. Because of the continuously elevated peripheral resistance to the circulation, as evidenced by increased diastolic tension, the left ventricle is constantly being required to exert itself to the utmost: it is as though the heart were being asked to work as it does when the host is climbing stairs; but must do this every minute of every hour, 24 hours a day. It is thus not surprising that left ventricular fatigue eventually becomes exhaustion and cardiac decompensation occurs.<sup>3</sup> The site of hypertensive disease is in the media of the smaller arterioles; the arterial musculature.<sup>4</sup> Embryologically, structurally and functionally the myocardium is but a specialized part of the vascular media, just as the endocardium is continuous with and part of the endothelial layer of the vascular system. The myocardium is thus subject to and vulnerable to the same sources of injury which have initiated the arteriolar disease.<sup>2</sup> Myocardial injury is further aggravated by local malcirculation and malnourishment because of the impaired coronary circulation. Such asphyxial embarrassment is, of course, enhanced by any anemia or respiratory difficulty.<sup>5</sup>

Almost innumerable attempts have been made to find a satisfactory numerically measurable test of cardiac efficiency. Indirectly many of these, such as determination of the vital

capacity, or the "exertion" tests,<sup>6</sup> give some evidence of the cardiac and circulatory efficiency but none have proven wholly satisfactory. MacKenzie<sup>7</sup> long since emphasized that the truly logical method of measuring the *heart reserve is by the response to increased effort*.<sup>2, 8</sup> The principle of determining reserve strength by the response to increased effort is applicable not only to the heart, but equally well to any other structure such as the kidneys, liver, automobile or bank. In clinical practice the patient's history anent the degree of exertion which induces dyspnea is probably the best guide to the status of the cardiac reserve<sup>9</sup>; it is normal for violent physical effort to result in anoxemia and dyspnea, but the occurrence of dyspnea following lesser and lesser exertion parallels diminishing cardiac reserve. Early during the course of hypertensive disease<sup>2</sup> the heart is sthenic, slow and powerful, but gradually, as the increasing burden overtakes the compensatory hypertrophy, the heart becomes asthenic, rapid and readily exhausted. The prognosis for any specific instance will depend greatly upon the cardiac reserve. Electrocardiography does not yield much useful prognostic information in hypertensive heart disease<sup>10</sup> unless coronary disease is noteworthy<sup>11</sup>; such latter information is, of course, of great significance.

Not infrequently there exists renal functional impairment in hypertensive disease. In years past it was long assumed that arterial hypertension invariably resulted from renal impairment; this is clearly not true.<sup>2, 12</sup> It has also been erroneously assumed that the hyperpiesis is a compensatory phenomenon required to enhance the renal circulation and therefore that reduction of the arterial tonus further diminished the renal efficiency. The renal circulation is less effective when marked hypertension exists than when the arterial tension is reduced to normal levels; it has been repeatedly demonstrated<sup>2, 13</sup> that gradual, slow reduction of the arterial tension, as with bismuth subnitrate,<sup>14, 15, 16</sup> results in notable improvement of the renal functional efficiency. In all probability much of the renal impairment discovered in hypertensive patients is secondary to the renal circulatory inadequacy.

Albuminuria is not a criterion of impaired renal efficiency; proteinuria is probably largely,

if not entirely, of extra-renal origin.<sup>17, 18, 19</sup> Nor is the absence of protein in the urine adequate evidence of normal urinary function.<sup>2</sup> There is no time here to attempt any discussion of the various clinical methods available for studying renal secretory efficiency.<sup>2, 20</sup> The fundamental principle of measuring *reserve* by noting the response to increased effort is applicable here. The greatest portion of renal work is done in concentrating the urine. It is much more work for the renal tubules to secrete a small volume of highly concentrated urine than a large volume of dilute urine. Thus renal effort may be increased either by increasing the solutes to be secreted or by diminishing the volume of water (solvent) available. The urea concentration test of Maclean and de Wesselow<sup>21</sup> follows the first idea, and the renal concentration test by deprivation of water<sup>22</sup> illustrates the latter (Volhard-Fishberg). In clinical practice<sup>2, 23</sup> the renal concentration test has revealed evidence of diminished function earlier than other methods, unless the far more cumbersome urea clearance test<sup>24</sup> be employed. Evaluation of the renal functional reserve<sup>2</sup> is necessary for proper prognostication.

Hypertensive disease is due to a great multiplicity of factors; each clinical instance may be due to different sources of vascular irritation and injury. In the great majority of cases several synergistic factors are superimposed. The initiating etiology of hypertension may be defined as "anything which injures or irritates the vascular structures to produce the response of hypertonia."<sup>2</sup> These factors are many. Of prognostic import is the fact that certain etiologic factors are amenable to therapeutic correction, whereas others are not. For example, foci of infection such as oral sepsis, plumbism, arsenical intoxication, thyrotoxicosis, unwise dietary habits, obesity and certain endogenous intoxications are all amenable to therapy, but other factors such as hereditary influences, past infections and intoxications since gone, inherent emotional and vasomotor instability, and foci of infections whose correction may be dangerous, are not amenable to therapy and are frequently irrevocable. To properly prognosticate, an understanding of the etiologic

background is necessary. It cannot be too often reiterated that curative therapy must rest upon an etiologic basis.<sup>2</sup>

These various and numerous factors act to *initiate* the progressive changes which constitute the pathogenesis of hypertensive disease. The real site of the disease is in the arterioles; hence the error in the term "high blood pressure" which misplaces emphasis upon the blood. Elevation of the arterial tension is a result of arterial disease; a symptom. The pathogenesis of hypertension is best illustrated diagrammatically.

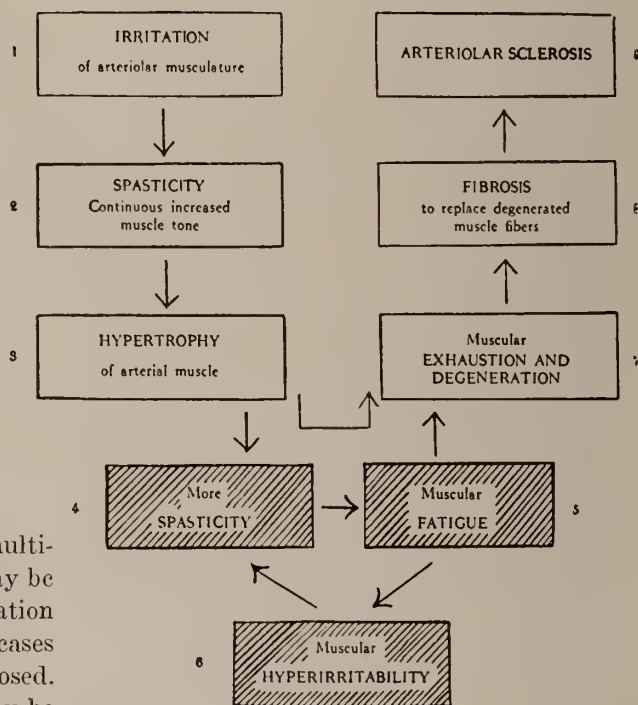


Chart 1. Probable pathogenesis of hypertensive arterial disease. The shaded portion of the diagram represents the vicious circle of fatigue, the "perpetuating factor" in hypertension. Up to the point of muscle degeneration (step 7) the processes are reversible; beyond that point irreparable. After Stieglitz (footnote 2).

This conception of the pathogenesis of hypertension<sup>2</sup> has significant bearing upon the problems of prognosis, for much will depend upon at what phase in this slowly progressive process the patient is seen. Hypertensive disease shows no inclination to spontaneous remission or to improvement; left alone the process is slowly but persistently progressive, even though the original initiating factors may have ceased to be operative. This tendency to constant pro-



gression we believe to be due to the "*perpetuating factor*" of fatigue illustrated in the diagram.

As illustrated in the diagram, the progressive changes in the arteriolar media are at first reversible, as in a reversible chemical reaction, but later become irreversible. Spasticity is relaxable, hypertrophy of muscle subsides with lessened use, fatigue is amenable to the influences of rest and hyperirritability may be diminished. Once the progression has reached Step 7 in the diagram, where the medial muscle cells are exhausted and replacement with collagenic connective tissue occurs, the changes are permanent, irrevocable, irreparable and non-amenable to therapy. Scarred, fibrotic vessels are not relaxable and thus the *best* therapeutic results which may be then anticipated is arrest of the progression. It is thus obvious that knowledge of the extent of arteriolar change is essential to proper understanding of the prognosis.

How may the extent of sclerotic change in the arteriole be determined? Sclerotic arterioles remain fixed and the arterial tension is not labile and variable as it is when arteriolar spasticity predominates. Persistent diastolic hypertension is more indicative of sclerotic change than transient, although excessive, hypertension, for the variability of the diastolic tension constitutes an effective criterion of the degree of arteriolar spasticity. In the majority of clinical instances, however, there exists both an element of spasm and sclerosis. It is possible to know whether or no a permanent reduction of the arterial tension may be anticipated<sup>25</sup> after a few weeks of adequate therapy<sup>2, 13</sup> but the patient is anxious for a much more immediate answer to the inevitable query "What may I expect?"

The degree of temporary relaxability of the arterioles may be readily and rapidly measured and the degree of permanent fibrotic scarring estimated. As is well known, the soluble nitrites cause a marked, rapid but transient relaxation of the arterioles and thus temporarily reduce the arterial tension. It is just because of the transient nature of this vasodilation that the soluble nitrites are relatively useless in the management of hypertensive disease, except in the acute emergencies such as angina pectoris or cerebral vascular spasm.<sup>2</sup> For the purposes

of observing the degree of relaxability of the arterial system, however, the soluble nitrites are invaluable.<sup>13</sup> For several years we have used amyl nitrite for this purpose.

The technique of the amyl nitrite test of arteriolar spasticity is very simple. With the patient in a comfortable position, either sitting or lying, the arterial tension is determined. The patient then inhales deeply three or four times of a perle of amyl nitrite while repeated, rapid, observations are made of the blood pressure. As the pressure falls very rapidly, it is essential that these readings be made with the greatest dispatch. In approximately 30 to 50 seconds the tension begins to rise again and further determination of the arterial tension are unnecessary, although they may be of interest.<sup>26</sup> The significant observation is the *minimum diastolic tension* observed after the inhalation. This minimum occurs very soon after the fall begins and usually comes shortly before the intense facial flush appears. We have now employed this valuable test in 180 cases of hypertensive disease, and although the sense of fullness in the head, tachycardia and facial flush may be temporarily distressing, we have never observed any ill effects from the procedure. In view of the fact that amyl nitrite and related compounds have been used for many years in angina pectoris and allied states without evidence of detriment, untoward effects are not to be anticipated.

As is true of any clinical test, the interpretation of the results is the most important element. The significant observation is the approach of the diastolic tension to or below normal. Let us consider, for example, four patients of about the same age with similar cardiac and renal conditions and similar degrees of hypertension. The results of the amyl nitrite test are shown in the table below:—

	A	B	C	D
Tension before test:	240/150	240/130	205/135	195/130
Minimum tension after inhalation amyl nitrite:	205/120	140/110	145/100	120/80
Maximum normal diastolic tension:	/90	/90	/90	/90
Approach of diastolic toward normal:	50%	50%	80%	100%
Estimated degree of arteriolar sclerosis:	+++	++	+	0
Tension after about one year observation and therapy:	205/120	200/114	148/95	146/86

These four cases are taken as typical illustrative examples from an extensive series. Case A was a man of 50 who died of cerebral hemorrhage 15 months after the test, Cases B, C, and D were women of 52, 48 and 50 years respectively. At first glance the four cases present similar findings, but after the amyl nitrite test the real differences become quite obvious.

The clinical course of patients under therapy for hypertensive disease has confirmed the impressions gained from the amyl nitrite test in more than 90% of the cases; when a poor response indicates extensive sclerotic changes in the arterioles, no great clinical improvement can be anticipated with any form of therapy and none occurs. Should the amyl nitrite test indicate that the hypertension is almost purely of a spastic nature, proper therapy with eradication of any and all etiologic factors should and usually does result in splendid and essentially permanent therapeutic results.<sup>25</sup> To discuss just what constitutes proper therapy is impossible here. It should be reiterated, however, that late in the pathogenesis of hypertensive disease the arteriolar changes are permanent, irrevocable and irreparable, whereas earlier spasticity is relaxable and arteriolar fatigue is amenable to rest.<sup>14, 16, 25</sup>

The sources of error in this test are not many, although clinical judgement is, of course, essential to intelligent interpretation of the observed data. Of the greatest importance in carrying out the test is speed in making the readings of the blood pressure; it may occasionally be advisable to disregard the systolic tension so that readings may be made more rapidly. This test reveals the *average* relaxability of the arterioles of the body and does not reveal whether or no localized sclerosis exists in the cerebral, retinal or coronary vessels. Retinoscopy, with its direct inspection of the retinal arteries, is of considerable value in determining the extent of retinal and cerebral sclerosis. Frequently, but by no means invariably, the retinal findings of angiosclerosis parallel the data of the amyl nitrite test. Arteriolarsclerosis does not progress at the same rate in all the arterioles of the body.<sup>27</sup> For example, in one clinical instance the fundi were reported as normal by the ophthalmologist, although the amyl nitrite test revealed extensive sclerosis

(185/120 falling to a minimum of 148/110). The converse may also occur. Failure to obtain good therapeutic results in the more purely spastic phase of hypertensive disease usually means that some active etiologic factor has been overlooked or is non-amenable to therapy. The status of the coronary circulation is not revealed by the amyl nitrite test; electrocardiography may or may not assist in detecting coronary sclerosis.

Associated or coincident complications such as diabetes mellitus, thyrotoxicosis, rheumatic carditis, anemia, plumbism, luetic aortitis and the like alter the prognosis of hypertensive disease. The effect of such coincident disease conditions is purely an individual problem and generalizations are valueless. Age is not of major importance, except inasmuch as it affects the normal life expectancy.<sup>2, p. 143</sup> Many instances of hypertension in older patients are purely spastic, whereas extensive irreparable sclerotic changes are not infrequently encountered in patients in their thirties, especially among those women in whom pregnancy has exacerbated and accelerated a pre-existent renal and/or vascular disease.<sup>23</sup> The duration of the hypertensive disease, when it is known, is a factor to be considered. Unfortunately it is frequently impossible to judge the duration of this disease, because of its asymptomatic early course. The rate of progression is not uniform.<sup>4</sup>

#### RECAPITULATIVE SUMMARY

Prognostication in individual instances of hypertensive arterial disease must be based upon a number of independently variable factors. The cardiac and renal functional reserves are important. Whether or no the specific initiative etiologic factors are amenable to therapy is significant. Of the greatest importance is a careful investigation of the degree of arteriolarsclerosis present. This may be estimated in part by ophthalmoscopic examination and also from the results of the amyl nitrite test. Spastic arterioles are relaxable, but fibrotic sclerotic vessels represent a point in the pathogenic progression where the processes are irreversible. Transient arterial dilation with the soluble nitrites, while being of little or no therapeutic value in hypertensive disease, has great prognostic value: the degree with which the diastolic tension approaches normal may be taken as a



quite reliable criterion of the relaxability of the arterial system. The progression of hypertensive disease is divisible into two phases: early hypertension due to arteriolar spasm, and later arteriolar sclerotic disease. These two phases do not constitute separate entities but merely stages of development of a single progressive disease, and in clinical practice the two frequently overlap.

#### BIBLIOGRAPHY

1. Fahr, G.: *Am. J. Med. Sci.*, 175: 453, 1928.
2. Stieglitz, E. J.: *Arterial Hypertension*, Paul B. Hoeber, New York, 1930.
3. Christian, H. A.: *J. A. M. A.*, 91: 549, 1928.
4. Kieth, N. M., Wagener, H. P. and Kernohan, J. W.: *Arch. Int. Med.*, 41: 141, Feb. 1928.
5. Burnwell, C. S., Smith, W. C. and Neighbors, De W.: *Am. J. Med. Sci.*, 178: 157, 1929.
6. Kahn, M. H.: *Am. J. Med. Sci.*, 157: 634, 1919.
7. MacKenzie, Sir J.: *Diseases of the Heart*, London, Oxford, Ed. 3, 1921.
8. Herrmann, G. R.: *New Orleans M. & S. J.*, 81: 436, 1928.
9. Means, J. H.: *Dyspnea*, Williams & Wilkins, Baltimore, 1924.
10. Ziskin, T.: *Arch. Int. Med.*, 42: 512, 1928.
11. Pardee, H. E. B.: *Clinical Aspects of the Electrocardiogram*, Paul B. Hoeber, New York, Ed. 2, 1930.
12. Rosenberg, M.: *Deutsch. med. Wochenschr.*, 58: 206, Feb. 5, 1932.
13. Stieglitz, E. J.: *Arch. Int. Med.*, 46: 227, Aug. 1930.
14. Stieglitz, E. J.: *Jour. Pharm. & Exper. Therap.*, 32: 23, Nov. 1927.
15. Stieglitz, E. J.: *Jour. Pharm. & Exper. Therap.*, 34: 407, Dec. 1928.
16. Stieglitz, E. J.: *J. A. M. A.*, 95: 842, Sept. 20, 1930.
17. Andrews, E. and Thomas, W. A.: *J. A. M. A.*, 90: 539, 1928.
18. Andrews, E., Thomas, W. A. and Welker, W. F.: *Arch. Int. Med.*, 43: 138, 1929.
19. Thomas, W. A.: *J. A. M. A.*, 97: 1055, 1931.
20. Fishberg, A. M.: *Hypertension and Nephritis*, Lea & Febiger, Philadelphia, 1930.
21. Maclean, H. and de Wesselow, O. L. U.: *Brit. J. Exper. Path.*, 1: 53, 1920.
22. Fishberg, A. M.: *Arch. Int. Med.*, 38: 259, 1926.
23. Stieglitz, E. J.: *Am. J. Obst. and Gynec.*, 21: 26, 1931.
24. Van Slyke, D. D., Stillman, E., Moller, E., Ehrech, W., McIntosh, J. F., Leiter, L., Mackay, E. M., Hannon, R. R., Moore, N. S. and Johnson, C.: *The Course of Bright's Disease*, Williams & Wilkins, Baltimore, 1930.
25. Stieglitz, E. J.: *Jour. Pharm. & Exper. Therap.* 1932, In Press.
26. Burgess, A. M.: *Annals Int. Med.*, 5: 441, Oct 1931.
27. Fishberg, A. M.: *Arch. Int. Med.*, 35: 650, May 1925.

#### DISCUSSION

Dr. Samuel J. Lang, Chicago: This is an interesting method of approach that Dr. Stieglitz has outlined. However, we must interpret blood pressure changes critically and seek to differentiate spontaneous variations from those due to therapeutic measures. It is conceivable that this might be a good method for classifying various stages or types of hypertension. Most of us know that in hypertensive subjects the systolic blood pressure varies on an average of 38 to 40 millimeters, depending on the types of patients with whom we work, and that the diastolic blood pressure varies from 20 to 25 millimeters. Ayman believes that the

diastolic pressure varies more than this and has also shown that a prolonged rest period preceding the reading of pressures is necessary for accurate results.

Along with these spontaneous variations there are, undoubtedly seasonal variations. We have recently shown in a study of 40 patients that there is an average seasonal variation of 30 millimeters of mercury in the systolic pressure—that is, during the warmer seasons the pressure tends to be lower.

Again the question of hyperventilation must be considered in this study. The process of deep breathing in itself produces a fall in blood pressure at times.

I should like to ask Dr. Stieglitz what consideration to the variability factor and the consideration of the hyperventilation factor he has made, and whether the various age groups—that is, whether older persons who presumably have greater extension of arterial sclerosis—respond differently from the younger groups.

Dr. Edward J. Stieglitz, Chicago: In reply to the question: we did not emphasize the spontaneous variations which we know occur partly because we did not have time. The readings as stated on the chart as one year later were the average readings over a period of perhaps six weeks, taken approximately a year later. They were not single readings, they were the average readings, which I feel makes them more significant.

Age does not figure particularly in predicting whether this or that patient has extensive sclerotic changes. The most marked fall in the arterial tension thus far noted following inhalations of amyl nitrite was observed in a woman of seventy-two. Her tension fell from 190 systolic to 105 systolic. We may see extensive sclerotic changes with very little response to vasodilation in young individuals.

The effect of hyperventilation is to be considered but at least it is more or less uniform in all instances, whereas the response to the specific drug, the volatile nitrite, is not uniform in all instances.

#### THE SAFEST CATARACT OPERATION, WITH REFERENCE TO ASTIGMATISM, FOLLOWING A CORNEAL CONJUNCTIVAL SUTURE\*

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The safest cataract operation is the one chosen by the surgeon which in his experience seems to be indicated by the temperament of the patient and the pathology of the cataractous eye. To any type of operation selected for senile cataract, I feel an additional sense of safety is secured by the presence of a suture in place before the incision is made. This suture stands by, for instant service in complications, such as protrusion of vitreous, and

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permits the surgical closing of the incised wound.

I shall not review today all the various sutures, conjunctival, and others used, nor comment on the contemporary interest in closing the cataract incision. The suture I use was not devised with reference to the Kalt or Liegard sutures, nor is the fundamental idea, or technique the same. The prompt healing of the cornea by trauma from foreign bodies, as seen in industrial accidents, encouraged me to introduce a thread within the substance of the cornea itself. My idea is to coapt the opposing surfaces of the incised wound by placing the cap like cut cornea on the sclera with a firm mattress suture. The stitch is placed horizontally in both the cornea and conjunctiva parallel to the tangent of the limbus. The upper thread passes beneath the conjunctiva, but not in the sclera, being three millimeters from the limbus and three millimeters in length. The thread in the cornea is two millimeters from the limbus, two millimeters in length and lies in the outer third or half of the substantia propria of the cornea. The center of the threads is approximately at the apex of the incision. The needle is a curved Kalt, or venous needle, and the thread triple O black silk. I find a slightly heavier sharp cutting needle with larger eye, and not so fine a thread easier to apply and as well tolerated. The needle and thread pass more smoothly if lubricated a bit with vaseline. The needle is introduced in the cornea at right angles and made to penetrate within the cornea. The length of the thread within the cornea is determined by the depth of the original penetration and the curve of the needle. If the length of the stitch is too short another stitch may be taken in the cornea. Scratching and pricking of the surface of the cornea may heal with a visible scar. It is not easy to see the healed line of the thread in the substance of the cornea. There has been no trouble with the healing of the cornea. The tied thread has not disturbed the conjunctiva nor the eye after the operation. If the conjunctiva is very thin the outer surface of the sclera may be included in the conjunctival stitch. Inasmuch as the suture is taken before the operation the firm pressure of the fixation forceps is not objectionable. The surgeon, or

his assistant, may select either hand or position on the side of the patient he wishes in taking the stitch in the cornea or conjunctiva. The thread is looped well out of the field of the incision. The loop may be shortened after the incision and the surgeon may proceed with his choice of cataract operation, with or without a conjunctival flap.

With the thread well secured in the cornea it may be used to raise the cornea and one can operate in an open field. This has the advantage of direct inspection of the anterior chamber and facilitates iridectomy or separation of posterior synechia before extraction of the lens. In tying the suture a double loop is taken first, followed by a single loop. The tie usually falls on the cornea with the smooth side on its surface and not on the line of the incision. The iris may be replaced after the suture is tied. With the wound approximated by the suture one may include as a part of the operation needling of the posterior capsule. This corneal conjunctival suture includes the usual advantages claimed for other sutures plus, by firm closure, some maintenance of intraocular pressure. My habit is not to disturb the eye for five days. The suture may be removed then, though I usually wait a week. I have seen the thread left in the eye two weeks though there is no advantage in that. If the tissues are too senile to heal within a week the contraindications for operation may not have been seriously considered.

A direct translation of Liegard's description of his and Kalt's suture from the *Annales d'oculistique*, 149: 119, 1913, reveals the idea and technique of their sutures. Kalt's sutures include a vertical stitch (point) in the cornea and a transverse stitch (*point*) in the episclera. Together, they made a T. Neither the vertical nor the horizontal branch is more than one millimeter in length. The vertical branch stops exactly at the junction of the transparent portion of the cornea with the sclerotic portion. The horizontal branch traverses the opaque portion as close as possible to the cornea. An interval of half a millimeter is ample to permit the passage of the knife.

To attain this result, the needle, curved in shape, is seized by its middle portion and the point is implanted perpendicularly to the membrane, the cornea and the episclera which it



is to traverse. The needle is introduced with little abrupt movements; when it is firmly engaged, it is lowered suddenly 90 degrees and one tries to bring out the point, taking in as little tissue as possible. There is no fear of passing through either the cornea or the sclera, with the exception of the sclera of children, in the case of which the unwarned operator is sometimes surprised by penetration into the anterior chamber. If this should happen, it is sufficient to withdraw the needle slightly and finish by executing the brusque movement downward as indicated.

The difficulties of the technic may be stated briefly as follows:

1. The vertical stitch in the cornea is executed by passing the needle from below upward. The affixing forceps (*prince a' fixation*) seizes the episclera near the limbus at the level of the vertical diameter. When one is operating on a right eye, the operator, holding the needle holder in his right hand, stands on the right of the patient. In this position, one has no point of support in executing the necessary movement of rotation on introducing the needle.

This absence of a point of support is the cause in many operators of a tremor which makes the first act extremely complicated: this is the reason for the difficulty in pricking at an exact point, of penetrating a tissue as resistant as that of the cornea, of tunneling in a perfectly vertical direction and of bringing out the point of the needle exactly at the junction of the sclera and the cornea.

Often, besides, either because the needle is not sharp enough (*pique mal*—literally, pricks badly) or because the patient is not docile, to traverse the corneal laminae it is necessary to exert counterpressure with the fixation forceps, so that one, as one might say, involuntarily, draws the conjunctiva in front of the limbus, and the point of the needle, on emerging, pierces it and thus creates a real complication to section with the knife.

In most cases, the effort demanded determines either a small amount of subconjunctival edema or a small hematoma at the site of fixation, which makes the correct execution of the second act difficult.

When one is operating on a left eye, the operator must place himself at the right of the

patient (the penetration of the needle is from below upward), and in this position there are added to the difficulties enumerated for the right eye, the extremely embarrassing nasal projection. The suture has to be made downward, as when one is operating on the base of a cavity.

2. The episcleral suture point is horizontal. One places oneself at the head of the patient, the hand supported on the forehead: for the right eye, one introduces the needle latero-medially; for the left eye, mediolaterally.

Here the difficulty arises from the projection of the superior orbital border: for fear that the patient will not be docile, that he will not understand well how to look down, that he will make brusque movements of elevation of the globe, one is forced to take the needle out and reintroduce it a number of times. Most often, as we have stated, a small edema swelling occasioned by the forceps in executing the first suture causes much difficulty in taking in sufficient of the episclera; one is deceived, on the other hand, as to the thickness of the tissue, with the result that one takes up an amount of sclera that proves too resistant for the fragility of the needle.

A final difficulty is provided by the knot itself. When the suture points are too far apart, one is surprised often to see, on the occasion of movement of the eyelids, the first tying loosen while one is busy with the second, so that the completed knot is extremely loose and consequently of little use.

I have thought that most of the difficulties enumerated could be suppressed by a slight modification of Kalt's technic.

For this, one must use a thread armed with two needles and perform the suture by making two exactly horizontal, parallel tunnelings in the cornea and in the episclera.

Thus one would avoid the troublesome projections, the nose and the superior border of the orbit, and, especially, one would have constantly a solid point of support, in the cheek. At the same time, the fixation, for both acts of the operation, would be at the same point, at a site where the small traumatism caused by the forceps could cause no difficulty during the rest of the operation.

The technic that Liegard uses is as follows:

1. Right eye: One places oneself at the

right of the patient. The fixation forceps held in the left hand seizes the conjunctiva and the episclera, near the limbus superiorly and laterally, toward 11 o'clock. The right hand, armed with the needle holder, supports itself firmly on the cheek.

The first needle is forced into the cornea a little medial to the vertical meridian. It digs a little horizontal tunnel in the corneal tissue and emerges a little lateral to the vertical meridian.

This little tunnel is made as close as possible to the limbus, but at first no inconvenience will be caused by leaving between the two tunnels a space of about one millimeter for the passage of the knife.

Without changing position, the fixation forceps still in the same place, one next seizes the second needle and causes the point to penetrate mediolaterally, and close to the limbus one executes a second tunnel in the episclera, the orifices of entrance and emergence of this tunnel being so far as possible in line with those of the tunnel in the cornea.

For this second suture point, it is an important recommendation to make it exactly horizontal. If the needle is introduced obliquely superolaterally, the counter-pressure exerted by the forceps is exerted falsely and it is extremely difficult to make the needle penetrate.

2. Left eye. One places oneself at the right of the patient. The fixation forceps seize the conjunctiva superomedially, toward 11 o'clock.

The right arm of the operator, in a manner envelopes the face, and the right hand, armed with the needle holder, supports itself on the left cheek.

The first needle penetrates the cornea horizontally, from without inward (lateromedially): in the same way, the second needle is introduced horizontally into the episclera, from the temple toward the nose.

Finally, to avoid loosening of the knot, I am in the habit of making a surgical knot (i. e., a double tying, following by a single tying), which has the advantage of not slipping while one is executing the final loop.

The suturing finished, one has an O suture, extremely firm.

When one has done the T suture, one is

surprised at the ease with which the O suture is executed.

In brief, the slight modifications that I have indicated have for their aim the facilitating of a procedure that I believe constitutes real progress in the operation for cataract. In my opinion, it does away with the greater part of the difficulties of Kalt's method, and I am persuaded that they will render a service to colleagues who have seen the advantages of the suture and who have not introduced it into their practice because of the very certain complications with which it is associated.

The foregoing is my more or less literal translation of Liegard's article.

Sutures are claimed to permit healing of the cut surfaces by first intention and as the wound cannot gap this permits more freedom of movement by the patient. A measure of these claims may be estimated by the astigmatism after the eye appears to be healed. As the surgeon may be inclined to inspect the eye too soon after the operation so may the same curiosity tempt him to prescribe lenses before the astigmatism has become final. A second estimation of refraction some months later may show less astigmatism and some improvement in vision. The usual time of ordering glasses is about six weeks after the operation. In my opinion the condition of the eye together with the type of cataract determines more than any suture the manner of healing, the degree of astigmatism, and the acuity of vision. The mattress suture fixes the cornea where it falls. If the incision is hesitant and uneven the agglutinated surfaces may heal unevenly. If the incision is on a slant the axis of astigmatism may be at an off axis. When a small conjunctival flap was made no conjunctiva became entangled in the wound. I have had no prolapse of iris following the use of the suture. There has been no folding or waving of the cornea with the suture. And one observes, of course, no eversion of the cornea. If you are in the habit of recording ophthalmometer measurements of astigmatism before and after all your cataract operations, I must record this as a preliminary report on astigmatism. Patients seem to follow in two general classes, one in which they are pleased with the improvement in vision that meets their essential needs, and the other group who



expect their eyes to be returned to youthful vigor and acuity. Most of my cataract patients were in public institutions. The glasses were ordered by the out patient department after they left the hospital. I am informed that many of them do not report for glasses. The records show that plus spheres are usually ordered without much interest being taken by disinterested parties, in the determination of the astigmatism. Many out of town patients get their glasses in their home town. Vision is often improved two lines or more on the chart by careful correction of astigmatism.

The series being reported is of 38 consecutive eyes for which I prescribed glasses. I have not recorded the vision except in the higher degrees of astigmatism. In this series the cylinders prescribed were plus four in three eyes; plus 3.50 in three eyes; plus 3.00 in two eyes; plus 2.25 in one eye; plus 2.00 in four eyes; plus 1.50 in six eyes; plus 1.25 in five eyes; plus one in three eyes; plus 0.75 in two eyes; plus 0.50 in seven eyes; and with no astigmatism present in two eyes. Comparison of the cylinder prescribed and the ophthalmometer reading in a few recent cases shows that in a general way the lens follows the ophthalmometer reading. This is not exact as in one case with a high degree shown by the ophthalmometer, in a badly healing eye with fluid vitreous, the cylinder accepted was much less than the ophthalmometer reading. In one patient there was some irregular astigmatism. The ophthalmoscope showed in this case distinct vitreous opacities. I regret that the ophthalmometer readings were not taken before operation.

F. C.	+12.00	+1.25	Axis 90°	
J. W.	+11.00	+1.00	Axis 110°	
F. K. C.	+10.00	+1.00	Axis 180°	
T. K.	+11.00	+1.00	Axis 90°	
B. J. K.	+10.00	+0.75	Axis 180°	
F. C.	+12.00	+0.75	Axis 100°	
W. H. Z.	+11.00	+0.50	Axis 60°	
B. B.	+10.00	+0.50	Axis 90°	
C. N.	+11.00	+0.50	Axis 65°	
W. R.	+10.00	+0.50	Axis 75°	
J. W.	+11.00	+0.50	Axis 90°	
C. W. B.	+9.00	+0.50	Axis 75°	
W. J. C.	+9.00	+0.50	Axis 90°	
J. H.	+9.00	20/100	Vitreous Opacities	
A. K.	+9.00	20/30		
R. FOR ASTIGMATISM				OPHTHALMOMETER
U. U.	+4.00	Axis 180°	20/65 Fluid Vitreous	7.00 Diopters at 180°
J. S.	+3.00	Axis 90°	20/30 2	2.50 Diopters at 95°
J. S.	+2.00	Axis 90°	20/20/1	1.25 Diopters at 95°
F. C.	+1.25	Axis 90°		1.50 Diopters at 90°
L. L.	+1.50	Axis 90°		1.75 Diopters at 90°
H. M.	+1.25	Axis 105°		1.00 Diopters at 105°
A. K.	No cylinder	vision 20/30		1.00 Diopters at 90°
J. H.	No cylinder	vision 20/100	Vitreous opacities Irregular	Astigmatism
E. H.	+3.00	Axis 120°		3.50 Diopters at 120°
Vision is materially improved by careful astigmatic correction				

### CONCLUSIONS

1. The mattress corneal conjunctival suture is easily applied.
2. It is in place before the incision is made.
3. It permits firm closure of the wound.
4. It is accepted by the eye with no harm to the cornea.
5. It is a factor of safety in cataract operations.
6. Its use does not sanction otherwise contraindicated cataract operations.
7. Its effect upon astigmatism is favorable.
8. It meets the usual claims of other sutures for closing the cataract wound.

### DISCUSSION

Dr. Alonzo B. Middleton, Pontiac: The members of this Section, as well as the essayist, are to be congratulated on this excellent presentation. The speaker would like to state that his experience is very limited in cases of this kind. Dr. Higgins sent me the details and some needles, a week ago and a couple of cases were done. The operation is very simple, not as difficult as it appears. My second case looked as if the stitches might be too tight, but they were not. It has not been my custom to measure such cases with the ophthalmometer before operation; but in these cases I did. Neither had a corneal astigmatism. It will be interesting to watch the result.

If a patient can have a cataract operation done and see without a diffusion circle or without having to have a diffusion circle corrected with a lens, it stands to reason that such a patient is fortunate. The operation is simple, the suture is entirely out of the way. I am surprised that the moving picture of such a case makes it appear so difficult. When the suture is taken in the cornea the needle follows Descemet's membrane nicely and it is not going to push through into the

W. E. J.	+9.00	+4.00	Axis 10°	20/30
U. U.	+8.00	+4.00	Axis 180°	20/65 Fluid Vitreous
O. T. H.	+9.00	+4.00	Axis 60°	20/200 Glaucoma
E. P.	+6.00	+3.50	Axis 10°	20/50 Myope
J. J.	+9.00	+3.50	Axis 180°	20/40
W. A. S.	+9.00	+3.50	Axis 75°	20/30
J. S.	+12.00	+3.00	Axis 90°	20/30 2 Passed R. R. Exam.
E. H.	+6.00	+3.00	Axis 120°	20/50 Myope
I. F. Y.	+9.00	+2.25	Axis 165°	
R. W.	+11.00	+2.00	Axis 160°	
I. F. Y.	+9.00	+2.00	Axis 160°	
J. S.	+11.00	+2.00	Axis 95°	20/20 1 Passed R. R. Exam.
F. K. C.	+9.00	+2.00	Axis 45°	
B. L.	+10.00	+1.50	Axis 120°	
C. D.	+10.00	+1.50	Axis 90°	
L. L.	+11.00	+1.50	Axis 90°	
E. W.	+11.00	+1.50	Axis 100°	
W. F. M.	+10.00	+1.50	Axis 180°	
B. J. K.	+10.00	+1.50	Axis 165°	
S. D.	+9.00	+1.25	Axis 90°	
H. M.	+11.00	+1.25	Axis 105°	
Ed. W.	+11.00	+1.25	Axis 110°	
R. W.	+10.00	+1.25	Axis 165°	

anterior chamber as easily as one might think. I had the eyeball held firmly on each side, but I do not think the essayist does so. Be that as it may, there is no difficulty whatever in properly placing the suture.

Dr. Alexander E. MacDonald, Toronto, Ontario: I want to congratulate Dr. Higgins on this paper. I agree with him in everything he says in the use of a suture. I have used one altogether in the last six years. My method is slightly different from that of Verhoeff of Boston. A tongue of conjunctiva is dissected back and laid over the cornea before making the incision. It gives much less astigmatism. I tie the suture and do a double peripheral iridectomy on either side of the tongue. It leaves a round pupil and I feel safer in irrigating the anterior chamber to know that it is firm.

I was interested in noting the axis of the astigmatism. I have not seen that with the Verhoeff suture which I have used. It is usually 180 degrees, or just off.

Dr. Walter Stevenson, Quincy: I have used this suture a number of times and one of the nice features is that you are able to insert the suture before incising the eye.

Another advantage of the Higgins suture over a conjunctival suture is that it cannot tear out while tying. A very small conjunctival flap, which sometimes is unavoidable, will not hold the ordinary conjunctival suture. As a slight modification of Dr. Higgins' suture I tie a knot in the distal end of the thread; in this way one may lift the cornea by a single thread instead of fishing around for both threads, provided, of course, that one desires to do an open operation; more than this, by pulling on the proximal thread one can immediately close the incision without tying, because the knot does not slip through the cornea. In cases of vitreous prolapse this is a very decided advantage, a knot can then be tied leisurely.

Dr. Harry Gradle, Chicago: I agree with Dr. Higgins in a few things he said regarding the use of a suture, and I disagree on others. In the first place I do not care for any suture that goes into the cornea; I do not believe it is sound surgery. In the second place it violates one of the primary dicta in cataract surgery laid down by Von Graefe that "no incision into the anterior chamber should be made through any non-vascular portion of the cornea," nor should there be any incision unless it can be covered with a conjunctival flap. With this type of suture it is impossible to produce a sufficiently large conjunctival flap to provide for the complete coverage of the edges of the corneal wound. With the conjunctival flap, after about three hours there is sufficient adhesion between the flap and the episcleral tissue to hold the wound closed as tight as a suture will hold it. No suture will prevent loss of vitreous. A few years ago I had the pleasure of seeing the past master, Kalt, using the suture in six cases, in three of which he lost vitreous. The use of the suture is advisable when an intracapsular is done, but I do not believe it is necessary in an extracapsular, because we have the posterior diaphragm to hold the vitreous back, and the adhesion of the conjunctival flap is sufficient in these cases to eliminate the neces-

sity of the extra step of the suture. But in intracapsular work where the retaining diaphragm is eliminated in its entirety I believe a suture is necessary. The effect of the suture upon astigmatism has been worked out in large series of cases. If I remember, Elschmig recorded the astigmatism subsequent to 750 intracapsular operations in which he used a suture, and Birch-Hirschfeld recently recorded his findings. It does not seem to make much difference whether or not a suture is used, and I do not believe a suture plays any role in subsequent refraction of the eye.

Dr. O. B. Nugent, Chicago: I am much interested in one phase of the subject, the position of the axis that Dr. Higgins gets. I know in my cases the axis of the cylinders is usually against the rule and most of his cases are with the rule. In a case where astigmatism is present following a cataract extraction the greatest curvature of the cornea is in the horizontal meridian or thereabout. If there is poor healing of the wound or a gape in the wound, the curvature immediately works itself to 180 in the horizontal axis. Therefore, the astigmatism must be against the rule. Dr. Higgins' cases are almost invariably with the rule. Inasmuch as we see in other cataract operations that the axis of the cylinder is against the rule, the suture must have something to do with it.

Dr. Samuel Higgins, Milwaukee (closing): Dr. Gradle is right in that a conjunctival suture does not hold the vitreous. You do not hold it with a loose undermined conjunctival flap. I have pulled the corneal conjunctival threads, with and without tying, and cut escaping vitreous cleaner and closer than with scissors.

There is no trouble at all in removing the thread. It can be taken out five days or two weeks or whenever you choose, after the operation. I use butyn for anesthesia.

Clinically there has been no trouble with healing of the cornea. A corneal incision is used by too many competent ophthalmologists for me to assume that a cut cornea does not heal.

I think Dr. Stevenson's idea of putting one knot in the thread so that you can have an open field is a good one. That is an added advantage of the corneal conjunctival suture. Certainly one can see much better when looking in an open field than when looking through a partially dried cornea.

## PROBLEMS IN OPHTHALMOLOGY\*

LEO L. MAYER, M. D.

CHICAGO

For a meeting of this type it has long been my belief that a panorama of what is being accomplished in our specialty and what is to be desired would be of great value. It would seem that there are four major conditions of interest, namely: detachment of the retina, glaucoma, cataract and trachoma.

\*Read before Section on Eye, Ear, Nose & Throat, Illinois State Medical Society. Springfield, May 17, 1932.



*Detachment of the Retina.* Gonin has recently reported 66% cures. He insists that the retinal tear must be found and cauterized. His work has brought forth three lines of thought. First, methods to localize the tear. Colenbrander uses the graphic procedure with a hand perimeter; Cowan and McAndrews a complicated optical method; Majewski the scleral lamp; and more involved procedures by Lindner, Salzmann, Safar, Imre, Comberg and others. The variety and number of methods bespeak the difficulties.

Secondly, other procedures for reattaching the retina have been tried. Larsson's use of diathermy, Deutschmann's simple ignipuncture, and Guist's use of the KOH stick.

The third line of investigation has been the consideration of the etiological factors found in these eyes having a retinal detachment. The theories and a review of the subject has been brought forward by Andersons' recent book on "Detachment of the Retina," while Luntz has studied the pathology in animals, and we at Northwestern University have been studying both fluid and tissue changes.

*Glaucoma.* Perhaps the outstanding medical contribution has been the use of various types of glaucosan proposed by Hamburger. In spite of the fact that some of the enthusiasm has waned Rauh reports 30 cases in which operation was delayed by the use of glaucosan, and Green has advocated the use of suprarenin bitrurate, while our own work has suggested the use of higher concentrations of epinephrin. Thiel has proposed gynergen because of its influence on the sympathetic system and Werner has augmented this idea. Palarès because he has experimentally proven an atony of the fibers of the smooth muscles in the vessel walls recommends ergotinin and tartrate of ergotamin. Gradle has recently reviewed those tests used for the early discovery of a glaucomatous condition, such as Seidel's dark room test, the "coffee test" and the effects of digital massage as brought out by Knapp. New operative procedures and modifications of the older methods have been introduced. Herbert and also Holth favor an iris inclusion operation; Slavik and also Gradle prefer the cyclodialysis. However, it would appear that iridectomy for the acute type and Elliott trephine for the chronic are still the most generally used. From the experimental side Zuckermann-Zich believes he has

proven the condition due to disturbance of the endothelium of the blood vessels. Rosengren has shown that no relation exists between the depth of the anterior chamber and intra-ocular tension. Studies on the intra-ocular fluids by Salit and O'Brien and also Duke-Elder's important contributions, together with the work of Magitot have enhanced our knowledge of the physiology, physics and chemistry of glaucoma.

*Cataract.* Since Barraquer's report the pendulum of operative methods has swung to the intracapsular type. The suction apparatus has been used with success by Harrison, Wolfe and Nugent. However, the use of capsule forceps seems to be reported oftener. Knapp obtained good results in his last third hundred cases. Arruga prefers the Stanculeanu-Torok method as also does Varshavski. Van Lint uses a temporal incision and then facoerisis. Additions to our knowledge of the lens have been made by the use of the slit lamp in Vogt's hands especially. Salit has studied the chemistry of the lens while Friedenwald and also Lebensohn in our laboratories have added to our knowledge of lens permeability. Kirby in investigating the calcium metabolism used parathormone without result. Andersen has investigated the sugar metabolism.

*Trachoma.* While this condition may be a rarity to some of us, those in the southern and western portion of the state of Illinois are very familiar with it. Its importance is emphasized by the fact that a periodical, "Revue Internationale du Trachome," deals exclusively with this subject. Of outstanding nature is Nouguchi's report on the discovery of the causative organism. Complete and satisfactory substantiation of this contribution has not been acknowledged. Gifford and Kendall working in our laboratories have been unable to find a vitamin A deficiency. Also at Northwestern, Gifford and Lazar have shown definitely that the inclusion bodies thought to be of so much importance by Lindner are due rather to an irritative phenomenon. Various treatments have been recommended which because of their number point to the fact that an ideal cure is not as yet forthcoming. Carbon-dioxide snow has been used by Szorgen, sodium chloride massage by Martinez; Pellathy and Schneider felt that sodium bicarbonate was indicated due to the acid displacement of the H-ion in trachoma. Medvediev has advocated autohemother-

apy for pannus, Coppez uses surgical diathermy, Stastnik injects thio-sulphate and sulphate of copper intravenously. Operatively the Denig graft of mucous membrane from the mouth has recently been shown not to be immune by Friedman, and Karbowski finds peritomy of greater value. The value of tarsectomy has been shown by Beigelman. Experimentally Tricoire has evolved an intradermal test for trachoma which is positive in about 80% of the cases.

Of the minor problems many may be touched upon more systematically on an anatomical basis.

*Lids.* Mayou has obtained excellent results in the treatment of blepharitis with vaccines, while Gutmann recommends radiation. Cardell advocates ultra-violet light in combination with vitamin A for hordeola and other superficial lesions. The use of Brilliant green for the cure of chronic persistent blepharitis is brought forth by Cerkasov. Injection of 80% alcohol for spastic entropion is Dudinoff's method. As an aid in intraocular operations Feingold does canthotomy while O'Brien paralyzes the branch of the facial nerve to the orbicularis muscle. Terson accomplishes akinesia by injecting 2% novocain from the conjunctival surface through the lid and then subconjunctivally. Hollis advocates resection of the orbicularis in paralytic ectropion.

*Cornea, Conjunctiva and Sclera.* Key reports a method for transplanting the whole cornea. Good results in tattooing of the cornea with gold and platinum chloride have been obtained by Sourdakoff and also Pischel. Lazar, in our laboratory, in a study of clinically diagnosed cases of ophthalmia neonatorum has demonstrated other organisms as the causative factor. Shieck believes the phlyctenule is an immunity reaction. Strebel has analyzed the scleral components as a means of studying changes due to malignant myopia. Manoli has studied vernal conjunctivitis and believes that a vagotonia due to a decrease in epinephrin output is the basis for the condition. He recommends adrenalin and calcium in the treatment. Peritomy is recommended by Szokolik for the prevention of corneal complication in gonorrhea. In a thorough and painstaking work Nicolich has investigated ocular antiseptics on a pharmacodynamic basis. He shows that their action depends upon plasmolysis or the coagulation of

albuminoids, and emphasizes that these facts must be taken into consideration in our choice of antiseptics. For preserving the sterility of eye drops Miklos uses a 0.05% propylester of paraoxybenzoic acid.

*Extra-Ocular Muscles.* With the advent of spinal anesthesia the occurrence of ocular muscle palsies have been reported by Fawcett, Levin and others. Castraveigo has clarified Marquez' method of determining the muscle paralyzed in diplopic conditions. A new muscle shortening operation has been devised by O'Connor while Berens has advocated measured tenotomy. Gifford has described an operation for the correction of abducens paralysis. Salvati has advocated the use of alcohol injections for the treatment of strabismus, but Dudinov after trying the method feels that the effects are transient due rather to cicatrix formation than to motor nerve fiber paralysis. A new stimulus has been added by the English school with results obtained in orthoptic treatment of non-paralytic squint, especially brought forward by Maddox.

*Uvea and Retina.* Wibaut reports good results in pigmentary degeneration of the retina with the injection of menphormone (an ovarian hormone). The question of uveitis has been thoroughly discussed at the last meeting of the Association for Research in Ophthalmology, which papers have appeared in the *American Journal of Ophthalmology*. That this subject is vital is shown by its choice for discussion at the International Congress in Spain in 1933. Methods of treating embolism of the central artery with atropine has been used by Kotilianskaya, while Imre uses amyl nitrate and Schmidt-Rimpler advocates massage of the vessel. In order to be of aid to our obstetrical colleague Maries has outlined the changes in the retina during pregnancy which call for its interruption.

Among the more general topics for consideration are a multitude of diversified subjects. Guist feels that he is able to diagnose more accurately general vessel changes by changes in the retinal vessels. The relation of postural tone and the eye has been enhanced by the work of Metzger, and we have added to this subject in a demonstration for the Central Neuro-Psychiatric Association last year. Chronaxie of the optic nerve has been investigated by Adrian, Achelis and Merkulow and



Fischer and Hofe. Some light has been shed by Nafziger on exophthalmos of Graves' disease. Judd has described the ocular findings in the more or less newly discovered condition known as tularemia or "rabbit's disease." Bothman believes that thyroid substance is indicated in progressive myopia, while Wiener still advocates epinephrin instillations and our work at Michael Reese Hospital would tend to show that higher concentrations of epinephrin are even more beneficial. A means of clearing the argyrosis of the conjunctiva and sclera is contributed by Weymann. Kiang has found ointments to be more efficacious both in time and extent of their action for miotic or mydriatic effect. Cremer found that calcium by mouth shortens the course and lessens the chance of recurrence in phlyctenular disease.

From this rapid and superficial résumé you may gain some idea as to what is being accomplished in ophthalmology. If I have been able to convey to you some work with which you were not conversant, or if I have been able to stimulate any new ideas, I shall feel that this discourse was not in vain. By reviewing some of the work reported, and bringing forth ideas on other work to be done I hope I have shown you a few of the many problems in ophthalmology.

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#### BIBLIOGRAPHY

- Gonin, Ann. d'ocul., 168: 689, 1931.
- Colenbrander, Arch. f. Ophth; 126: 424, 1931.
- Cowan and McAndrews, Arch. of Ophth; 5: 760, 1931.
- Majewski, Arch. D'Ophth; 47: 440, 1930.
- Lindner, Arch. f. Ophth; 123: 233, 1929.
- Salzman, Arch. f. Ophth; 123: 252, 1930.
- Safar, Ztschr. f. Augenh; 71: 307, 1930.
- Imre, Ber. u. d. Versamml. d. deutsch. ophth. Gesellsch. 48: 321, 1930.
- Comberg, Ber. u. d. Versamml. d. deutsch. ophth. Gesellsch. 48: 322, 1930.
- Larsson, Acta. Ophth; 8: 192, 1930.
- Deutschmann, Ztschr. f. Augenh; 73: 127, 1931.
- Guist, Ztschr. f. Augenh; 74: 232, 1931.
- Anderson, Detachment of the Retina, University Press, Cambridge, England, 1931.
- Luntz, Ztschr. f. Augenh; 73: 380, 1931.
- Mayer, Arch. Ophth; 7: 499, 1932.
- Mayer, Arch. Ophth., to be published.
- Hamburger, Med. Klin; 21: 1495, 1925.
- Rauh, Ztschr. f. Augenh; 73: 8, 1930.
- Green, Arch. of Ophth; 5: 350, 1931.
- Mayer, Am. J. Ophth; 14: 1015, 1931.
- Thiel, Klin. Monatshl. f. Augenh; 77: 753, 1926.
- Werner, Acta. Ophth; 9: 275, 1931.
- Palarès, Arch. D'Oft. Hisp-Am; 30: 443, 1930.
- Gradle, Am. J. Ophth; 14: 936, 1931.
- Knapp, Klin. Monatshl. f. Augenh. 1: 691, 1912.
- Herbert, Brit. J. Ophth; 14: 433, 1930.
- Holth, Arch. Ophth; 4: 803, 1930.
- Slavik, Ophthalm, Shorn, 5: 108, 1930.
- Gradle, Am. J. Ophth; 14: 1101, 1931.
- Zuckermann-Zich, Ophthalm. Shorn; 5: 57, 1930.
- Rosengren, Acta Ophth; 9: 2, 1930.
- Salit, and O'Brien, Arch. Ophth; 5: 903, 1931.
- Duke-Elder; Arch. Ophth; 6: 158, 1931.
- Magitot, Arch. Ophth; 6: 647, 1931.
- Barraquer, Am. J. Ophth; 3: 721, 1920.
- Harrison, Am. J. Ophth; 15: 104, 1932.
- Wolfe, J. Iowa Med. Soc; 18: 49, 1928.
- Nugent, Ill. Med. J; 52: 250, 1927.
- Knapp, Arch. Ophth; 5: 575, 1931.
- Arruga, Arch. d. Oft. Hisp-Am; 30: 593, 1930.
- Stanculeanu, Klin. Monatshl. f. Augenh; 50: 527, 1912.
- Varshavski, Russk. Ophth. J; 12: 494, 1930.
- Van Lint, Arch. d'ophth; 47: 380, 1930.
- Vogt, Lehrbuch u. Atlas d. Spaltlampen d. Lebenden Auges, J. Springer, Berlin, 1931, vol. 2.
- Salit, Am. J. Ophth; 14: 523, 1931.
- Friedenwald, Arch. ophth; 4: 350, 1930.
- Lebensohn, Tras. Ophth. Sec. A.M.A. 1932, unpublished.
- Kirhy, Arch. Ophth; 5: 754, 1931.
- Andersen, Acta Ophth; 7: 339, 1929.
- Noguchi, J. Exper. Med. (Supp. no. 2) 48: 1, 1928.
- Gifford and Kendall, Arch. Ophth; 4: 322, 1930.
- Gifford and Lazar, Arch. Ophth; 4: 468, 1930.
- Lindner, Klin. Monatshl. f. Augenh; 77: 555, 1926.
- Sjorgen, Acta Ophth; 8: 29, 1930.
- Martinez, Rev. D'oto-neuro-ophthal, 5: 551, 1930.
- Pellathy and Schneider, Klin. Monatsbl. f. Augenh; 85: 774, 1930.
- Medvediev, Ukrain. Oft. J. 1: 67 (part 2) 1930.
- Coppez, Bull. Soc. Belge D'ophth; 60: 56, 1930.
- Stastnik, Klin. Monatshl. f. Augenh; 85: 396, 1930.
- Denig, Arch. Ophth; 1: 351, 1929.
- Friedman, Arch. ophth; 4: 868, 1930.
- Karhowski, Klin. Monatsbl. f. Augenh; 85: 411, 1930.
- Beigelman, Am. J. Ophth; 13: 677, 1930.
- Tricoire, Rev. Internat. du Trachome; 8: 144, 1931.
- Mayou, Tr. Ophth. Soc. U. Kingdom, 51: 48, 1931.
- Gutmann, Klin. Monatshl. f. Augenh; 85: 782, 1930.
- Cardell, Brit. j. Ophth; 14: 354, 1930.
- Cerkasov, Russk. Oftalm. j. 12: 229, 1930.
- Dudinoff, Russk. Ophth. j; 11: 809, 1930.
- Feingold, cited by Bahn, Texas State J. Med. 27: 344, 1931.
- O'Brien, Arch. ophth; 1: 447, 1929.
- Terson, Ann. d'ocul; 168: 653, 1931.
- Hollós, Ztschr. f. Augenh; 73: 27, 1930.
- Key, Tr. Am. Ophth. Soc; 28: 29, 1930.
- Sourdakoff, Nat. M. J. China; 17: 75, 1931.
- Pischel, Arch. Ophth; 3: 176, 1930.
- Lazar, Arch. ophth; 6: 32, 1931.
- Schieck, Munchen. Med. Wehnschr; 79: 6, 1932.
- Strehel, Schweiz. Med. Wehnschr; 61: 1102, 1931.
- Mamoli, Saggi di Oft; 5: 362, 1929.
- Szokolik, Klin. Monatsbl. f. Augenh; 87: 408, 1931.
- Nicolich, Arch. d. Oft. Hisp-Am; 31: 280, 1931.
- Miklos, Brit. J. Ophth; 15: 649, 1931.
- Fawcett; Minnesota Med; 14: 648, 1931.
- Levin, Arch. Ophth; 4: 516, 1930.
- Castraveigo, Am. J. Ophth; 15: 33, 1932.
- O'Connor, Arch. ophth; 5: 209, 1931.
- Berens, Am. J. Ophth; 12: 720, 1930.
- Gifford, Arch. Ophth; 2: 651, 1929.
- Salvati, Gior. di oculi; 11: 4, 1930.
- Dudinov, Klin. Monatshl. f. Augenh; 87: 371, 1931.
- Maddox and others, Tr. Ophth. Soc. U. K; Vol. 51, 1931.
- Wihaut, Deutsche Med. Wehnschr; 57: 1739, 1931.
- Kotilianskaya, Arch. Oftal; 7: 195, 1930.
- Imre, Ber. u. d. Versemml. d. deutsch. Ophth. Gesellsch; 48: 279, 1930.
- Schmidt-Rimpler, Graefe-Semisch Handh. 6: 56, 1903.
- Maries, Arch. d. Oft. d. Buenos Aires; 6: 359, 1931.
- Guist, Ztschr. f. Augenh; 73: 232, 1931.
- Metzger, Arch. f. Ophth; 127, 296, 1931.

100. Mayer, unpublished.
101. Adrian, *Ergeb. d. Physiol*; 26: 501, 1928.
102. Achelis and Merkulow, *Ztschr. f. Sinn*; 60: 95, 1929.
103. Fischer and Hofe; *Arch. f. Augenh*; 105: 443, 1932.
104. Nafziger, *Ann. Surg*; 94: 582, 1931.
105. Judd, *Arch. Ophth*; 2, 300, 1929.
106. Bothman, *Am. J. Ophth*; 14: 918, 1931.
107. Wiener, *Am. J. Ophth*; 14: 520, 1931.
108. Mayer, *Am. J. Ophth*; 14: 908, 1931.
109. Weymann, *J. A. M. A*; 93: 1367, 1929.
110. Kiang, *Nat. M. J. China*; 17: 67, 1931.
111. Cremer, *Munchen. Med. Wehnschr*; 78: 1223, 1931.

### DISCUSSION

Dr. Walter Stevenson, Quincy: Dr. Mayer's paper is such a complete story of the progress of ophthalmology that I do not see how I can either add to or detract from it. He has not overlooked very much that is of interest. Certainly a paper of this sort is difficult to discuss. However, it occurs to me that it might be of interest to give one's personal practical experience along some of the lines brought out in the paper.

My experience with retinal detachment is limited to a small number of cases such as one would see in an ordinary private practice. Results in these cases have been extremely disappointing. One case in which I felt that a tear in the retina was located was cauterized without cure. So far as personal experiences are concerned, I have never seen a case of retinal detachment that was cured. The reported results of Gonin suggest a more optimistic outlook. Detachment is not common; the difficulty in locating the tear and the highly technical treatment suggest that perhaps these cases should be referred to one who sees many of them. A recently reported experimental study by the essayist would indicate that the retinal tear or hole is not the entire factor in maintaining detached retina. I want to congratulate Dr. Mayer on his experimental work.

Glaucozan has, I am sure, saved vision in several acute inflammatory glaucomatous cases. I have not found it so useful in chronic simple cases. Laevoglaucozan has been very useful in bursting recent adhesions of acute iritis. I have used glaucozan preliminary to external eye operations and also preliminary to trephining for glaucoma as a hemostatic. This makes the field practically bloodless. I have the feeling that iridectomy is the best operation in cases of acute congestive glaucoma, and in these it has served me well, provided the case was seen in the first or even second attack. So many operations have been devised for chronic simple glaucoma that one is tempted to believe no one of them is satisfactory. The Elliot trephine operation has been my choice in these cases.

There can be no doubt that cataract extraction in capsule is theoretically the ideal operation. I have discarded the so-called Smith-Indian operation—it is too dangerous in my hands. Extraction in capsule by forceps has given me too many torn capsules to continue its use. This of course may be due to poor technique. I have used the Barraquer type of operation for the past few years, and in selected cases it is ideal. In fully mature cataract I believe the capsulotomy operation gives quite as good results. Intracapsular extraction is contraindicated in patients under 50 years of age. The O'Brien method of injecting the seventh nerve for

akinesia certainly fulfills all requirements; it does not cause edema of the lids and requires but one needle puncture. Retrobulbar injection prior to operation is apparently an additional safeguard in cataract extraction. I should like to call to your attention the excellent corneal conjunctival suture devised by Dr. S. G. Higgins of Milwaukee.

Injection of alcohol for spastic entropion has given excellent results in one case.

Spinal anesthesia is now being used almost routinely in our hospitals for operations below the diaphragm. We have not seen ocular complications following the procedure. The technique of this method of anesthesia is now so improved and standardized that a report of bad results should always give the details of technique and the type of anesthetic used. Novocain is considered the safest drug. I believe bad results from the standpoint of ocular muscular paralysis have been due to the use of stovain.

Adrenalin instillations in cases of progressive myopia, and cases of incipient myopia in children is distinctly indicated. I have used it routinely in cases presenting symptoms of progression and feel that the disease has been arrested.

Calcium and vitamin deficiencies apparently are underlying etiological factors in many cases of blepharitis, conjunctivitis, and phlyctenulosis. In children especially the addition of viosterol is beneficial. Indications for the administration of calcium and parathyroid extract should be considered.

Dr. Samuel Higgins, Milwaukee: Dr. Mayer referred to argyrosis. I had one patient, a woman, who had a pronounced stain of the lower lid. I gave her urotropin which decreased the discoloration markedly. Urotropin internally also absorbs the argyrosis of the sclera. The medicine should be taken several months.

While it may not be used as much as the literature of the manufacturers would indicate, laevo-glaucozan has an active field in glaucoma. I do not believe it should be neglected or discarded.

Dr. Leo L. Mayer, Chicago (closing): I want particularly to thank Dr. Stevenson for his interesting type of discussion. Papers such as this, which give a résumé of what has been done in the field of ophthalmology, are difficult to discuss, and I appreciate very much what he has said.

### SOME LEGAL ASPECTS OF PUBLIC HEALTH AND MEDICINE\*

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The limited time allowed me makes it necessary that this paper be largely selective. There is a mass of matter in our Statutes and the rules and regulations established by the State Board of Health, which is very interesting

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indeed, but the enumeration of which would carry this paper far beyond the limits of time at my disposal.

I cannot even attempt to enumerate all the matters over which the Boards of Health, State and local take jurisdiction. I can safely make this statement, however, that an examination of the Statutes of Illinois and the rules and regulations established by the State Board of Health will disclose the fact that Illinois is far in the forefront in the matter of the preservation of the public health.

In my judgment, there is still room for considerable advance. Universal compulsory vaccination for smallpox should be made a law. There are matters still in the controversial stage, such as the Schick test and the Dick test, which I believe in time will be proven so efficacious that they also may be covered by legislation.

The word health, as referred to the condition of the body, means freedom from disease, sickness or pain; that condition of our living organism and its various parts and functions which conduces to assist and prolong life.

It is a well recognized principle that the protection of the public health is one of the first duties of Government.

This power may be exercised by the Federal Government, by the State, by municipalities, or by other local subdivisions of the state, through officials and official boards to whom the power may have been properly delegated. This power must be exercised reasonably. It cannot be so used as to deprive citizens of the exercise or enjoyment of their lawful rights, if done in a manner not injurious or dangerous to others. However, when the object of an enactment is to promote the public health, there is no invasion of constitutional rights even if the enforcement of the law interferes to some extent with liberty or property.

Statutes enacted for the purpose of preserving the public health are subject to the final decisions of the courts as to whether they are reasonable, but the universal rule is that they shall be liberally construed to carry out such purpose. Every intendment is to be allowed in favor of their validity.

If the question is at all close, the Courts will take the opinion of the Legislature as set forth in the law.

Boards of Health are regarded as administrative bodies. They are governmental agencies, endowed by law with distinct legal rights. They may be vested by the legislature with the power of making rules and regulations for the protection of the public health and when such rules and regulations are duly adopted by virtue of legislative authority, they have the force and effect of law. It becomes the duty of all persons affected thereby to obey the same and for a violation of these rules or regulations, the offender may be subjected to a criminal prosecution.

Incidentally I might mention some early legislation in this country. In the 18th Century there were epidemics of yellow fever, in New York, Philadelphia, Charleston, Baltimore and other seaports. When the great epidemic was raging in Philadelphia in 1793, Virginia resorted to strict quarantine laws as a safeguard against yellow fever. Smallpox periodically assumed epidemic proportions. In Virginia, as well as in Europe and other places, there was at first great opposition to inoculation and vaccination against smallpox. An epidemic in Williamsburg in 1768 was attributed to inoculation. An Act was passed in 1770 to penalize anyone wilfully importing variolous matter with the intention of inoculating. Seven years later this Act was amended to permit inoculation if the consent of the housekeepers within the radius of two miles was first obtained.

It is interesting to recall a matter which gave the Revolutionary Army trouble. Congress in 1778, in an effort to diminish venereal diseases, issued an order to the effect that \$10.00 should be paid by every officer and \$4.00 by every soldier who was sent to any hospital to be cured of venereal disease and those sums were to be deducted from their pay.

Malaria was particularly troublesome in the south. Congress, in 1776, ordered that 300 lbs. of Peruvian Bark be sent to the Southern Department for the use of troops.

The term "Practicing Medicine" is not limited to the use of drugs or substances supposed to possess curative or remedial properties but includes the treatment of disease for the purpose of a cure, whether such treatment involves the use of drugs or not and, in com-

mon acceptance, anyone whose occupation is the treatment of diseases for the purpose of curing them is a "physician." *The People v. Siman*, 278 Ill. 256.

Section 4 of the Medical Practice Act, entitled: "An Act To Revise the Law In Relation To The Practice and Treatment of Human Ailment For the Better Protection of The Public Health and to Prescribe Penalties for the Violation Thereof," notes two branches:

(a) The practice of medicine in all of its branches.

(b) The treatment of human ailments without the use of drugs or medicines and without operative surgery.

The first branch refers to the general practitioner and needs no elucidation.

As to the second branch, the examination of applicants who seek to practice any system or methods of treating human ailments without the use of drugs or medicines or without operative surgery shall be the same as required of general practitioners excepting materia medica, therapeutics, surgery, obstetrics and theory and practice. If the applicant is a graduate of an institution in which obstetrics was taught, he may be examined in obstetrics and, if found satisfactory, allowed to practice obstetrics. Under this branch come osteopathy, chiropractors, neuropaths and a large number of others. (Examination of applicants who seek to practice midwifery are left largely to the discretion of the Department.)

Physicians as defined in the *Siman* case, such as osteopaths, are authorized to treat human ailments without the use of medicine and without performing surgical operations and under such authority they may treat cases of pneumonia, gastritis, rheumatism, paralysis and other diseases. (*The Siman* case page 259.)

It is interesting to note the provisions of Sec. 21, of the Medical Practice Act reading as follows: "Nothing in this Act shall be construed as prohibiting any person from using any antiseptic prescribed by the Department of Public Health of the State for the prevention of the spread of communicable diseases nor from using antidotes, or rendering any other service in case of emergency, if without compensation."

The Act does not apply to dentists, pharm-

acists, optometrists, etc., who are treated in other acts.

No person shall make representation that he can permanently cure a manifestly incurable condition of sickness, disease or injury.

Apparently, there is no prohibition against masseurs, magnetic healers, Christian Science healers and the like so long as those who follow these practices do not advertise their business as that of a doctor or physician. (*The People v. Gordon* 194 Ill. 560.)

The Legislature has recognized the fact that there is efficacy in the practice of systems or methods of treating human ailments without the use of drugs or medicines and without operative surgery, when scientifically done by persons who can comply with the qualifications laid down by the law.

Without going into the requirements, I will state that in my opinion the provisions of the law are fair and fairly administered by the Department. In a recent report issued by a committee, of which Ray L. Wilbur, Secretary of the Interior and a Physician, is chairman, entitled "The Healing Cults," it is stated that there are about seventy cults of miscellaneous drugless healers practicing medicine irregularly and illegally in the United States. However, whether one's individual opinion is favorable or unfavorable to the drugless healers, the law recognizes them as legitimate and, if they comply with the Statute, they are entitled to pursue their occupation.

The report above referred to states that out of the total number of one of these cults, nearly one-fourth practice without a license, that is, illegally.

The Department has representatives throughout the State who run down men and women so practicing without licenses and bring them before the proper court which imposes fines. This is sometimes referred to as persecution, but, as a matter of fact, it is clearly for the purpose of protecting the public health.

An interesting question arises where a member of one of these cults is called to treat a case such as diphtheria and fails to diagnose it and the patient dies: is the practitioner criminally liable? In reason he should be so held and I think the Courts will uphold a conviction.



In *People v. Johnson*, 265 Ill. App. 179, it is held as follows:

"Practice of medicine without a license, contrary to Cahill's St. ch. 91, Par. 25, is sufficiently shown to support a conviction where the evidence shows that the defendant held himself out as a person engaged in the treatment of human ailments, maintaining an office and erecting a sign with the abbreviation 'Dr.' prefixed to his name thereon, that he appeared in the telephone directory as a 'Naprath,' that he advertised in radio addresses that he could cure any disease except leprosy and cancer, calling himself 'Doctor,' that he also advertised in newspapers, and that at his office he treated persons for certain ailments by manipulating their bodies with his hands, receiving compensation for his services.

"Under the Medical Practice Act providing for the punishment by fine or imprisonment in the county jail, or both, of persons committing any of the offenses enumerated in the act, a defendant found guilty of practicing medicine without a license may be sentenced to the State Farm at Vandalia, since our statutes further provide that the court may sentence a prisoner to jail or to the State Farm if found guilty of a misdemeanor.

"As a general rule, the religious doctrine or belief of a person cannot be recognized or accepted as a justification or excuse for committing an act which is a criminal offense against the law of the land.

"The law has imposed a positive and absolute duty on parents whatever their conscientious or religious opinions may be, to provide medical aid for their infant children in their custody. The facts show that the prisoner thought it was irreligious to call in medical aid but that is no excuse for not obeying the law. *Corpus Juris*, Vol. 16, page 93."

It might be added that if an adult is satisfied to get along without medicine or with any particular treatment by any cult, there is no law against this, any more than there is a law against suicide.

*State Department of Public Health.* For administrative purposes, the State Department of Public Health is organized into ten divisions, which operate to provide a well rounded Public Health service in the State.

The Central Division is the administrative unit.

The Division of communicable diseases is the detective bureau. Its business is to keep informed about the activity of germs in the state, to seek out their hiding places, prevent them from travelling and to build up barriers against them. The division is headed by a physician or an epidemiologist, as he is called. Under him are a dozen other physicians throughout the state and 2700 local health officers, who send in daily reports of cases of communicable diseases.

The division of vital statistics keeps record of all births, deaths, etc.

The division of laboratories makes tests of blood, sputum, feces, water, dog's heads and other matter to determine whether or not disease germs are present. The services of the laboratories are free to citizens of Illinois. Tests are made for typhoid, diphtheria, tuberculosis, malaria, syphilis, gonorrhea, rabies, undulant fever, tularemia, Vincent's angina and several other diseases.

The Division of Public Health Instruction spends large sums annually to keep the people informed about current health conditions, sound scientific control and preventive measures, by means of the press, the movie, the platform and exhibit halls.

The Division of Sanitary Engineering investigates municipal water, sewage, disposal systems, inspects milk plant, abates nuisances and participates in mosquito eradication projects.

The division of child hygiene and public health nursing is largely a teaching organization.

The division of venereal diseases undertakes to improve health by preventing the spread of these diseases. It requires reports from all physicians and the maintenance of free clinics. It also provides lectures, literature and motion picture films.

Illinois has a Statute which enables counties or cities to segregate and treat persons suffering from this disease.

The division of tuberculosis undertakes to enforce rules and regulations governing its control.

The division of lodging house inspection is confined to Chicago. Its purpose is to pre-

vent overcrowding, to see that sanitary standards prevail, investigates ventilation, water supplies, sewage disposal and cleanliness.

Under the Civil Administrative Code, the Department of Public Health has practically unlimited powers over every possible matter which in any way affects the public health.

*Local Boards of Health.* Paragraph 76 of Article V of the Act to provide for the incorporation of cities and villages, gives power to the City Council, "To appoint a board of health and prescribe its powers and duties."

Under a separate Act found in Chapter 34, pertaining to Counties, the Supervisor, Assessor and Town Clerk are constituted a Board of Health, whose powers may not be exercised within the limits of a City or Village. These town boards are empowered by Statute to do all acts and make all regulations necessary or expedient for the promotion of health or suppression of disease, appoint a health officer, provide gratuitous vaccination, disinfection, etc.

The State Board of Health, having general supervision of the interests of the health and lives of the People of the State, has supreme authority in matters of quarantine.

It is the duty of all local Boards of Health, health authorities and officers, police officers, sheriffs, constables and all other officers and employees of the State in any county, village, city or township thereof, to enforce the rules and regulations that may be adopted by the State Board of Health.

In *People v. Robertson*, 302 Ill. 422, it is held:

1. That the preservation of public health is a part of the police power of the state;

2. The exercise of police power to preserve public health rests with the Legislature and the courts have nothing to do with the wisdom or expediency of the measures adopted and will not interfere except where the regulations are arbitrary, oppressive and unreasonable.

3. The State Board has authority to designate such diseases as are contagious and infectious.

4. It has power to isolate persons who are throwing off disease germs and thereby endangering the public health.

5. As quarantine is not a cure but is a preventive, the person quarantined need not

be actually sick and it is not necessary for the health authorities to wait until he has actually caused others to become sick by contact with him before placing him under quarantine.

6. A person may be quarantined who discharges germs of typhoid fever whether or not the person is actually sick or has ever suffered from the disease, provided a proper examination discloses that such person is a carrier of typhoid bacilli.

7. The Legislature has authority to confer upon local boards of health the exercise of powers to prescribe rules and impose penalties concerning health if not in conflict with the rules of the Department of Public Health.

The Supreme Court held that the power to quarantine must be exercised by the *board* of health and cannot be delegated to a health commissioner.

This rule would without doubt apply to Town Boards of Health. The *Robertson* decision was rendered in a case where a typhoid carrier was quarantined. The quarantine regulations prescribed that the carrier should remain in her home and forbade her to prepare food for any one excepting her husband; she should let none come into her home as roomers or otherwise unless they had been immunized from typhoid fever.

It is interesting to know that there are in Illinois about 100 individuals who are chronic carriers of typhoid fever, known to the health officials of the State, all of whom are under agreement not to handle foods or do work like dishwashing. The State Department of Health keeps informed of their whereabouts and a representative of the Board visits them periodically.

*Vaccination of School Children.* In *Hagler v. Larner*, 284 Ill. 547, this question is discussed.

The Board of Health of Granite City passed a resolution that all children be excluded from the public schools for a period of two weeks unless recently vaccinated or unless they produced a certificate that they had been successfully vaccinated within the past five years or had had smallpox. The Court upheld the rule.

In many countries compulsory vaccination has been the settled policy of the State and our own country has adopted it as one of the preliminary requisites to military service.



Vaccination is now recognized as the only safe prevention of the spread of smallpox and while parents have the right to resist compulsory vaccination of their children except in cases of necessity, yet they have no right to insist upon their children continuing in school when smallpox is epidemic in the community and the school board passes such a rule, as appears in this case.

Illinois has a Food Standard Commission for the purpose of determining and adopting standards of quality, purity or strength for food products, with power to examine raw materials used in the manufacture of food products and to determine whether they are fit. They may examine all premises, carriages or cars where food is manufactured, transported, stored or served to patrons.

Their powers extend to the examination of all manufactured articles of food or drink.

The law provides licenses in certain cases and penalties for violation of the law.

It is stated in the *People v. Price*, 257 Ill. 587, that one of the objects of the Pure Food Law is to protect the Public Health by prohibiting dealers from selling food to which has been added for the purpose of preserving it, ingredients injurious to health, or from selling any compound as a preservative which contains any such ingredients. There is in the Pure Food Act a prohibition against the use of boric acid. The conviction of a party using boric acid in a canning compound was sustained. The defendant contended that boric acid is not unwholesome and injurious and quoted from various scientific authorities. Proof was introduced to the effect that boric acid was injurious to the human system. The Court held that the Legislative declaration that it was unwholesome must be accepted by the Courts.

Under a general power to preserve the public health and to make regulations for that purpose, health authorities may prevent the assembling of people and may close public places during the existence of a contagious disease in the community. This rule has been applied to the closing of public schools and moving picture theaters and the prohibiting of carnivals, chautauques, circuses and fairs. Such orders or regulations are not invalid by reason of the fact that they may have the

effect of preventing the performance of contracts. (29 C. J. 252.)

Illinois has an act for the sanitary control of swimming pools.

Another act covers the sale of bedding.

Another act provides for mosquito abatement districts.

We have on our Statute books the Illinois Nursing Act, the Pharmacy Act, the Dental Surgery Act, the Veterinary Medical and Surgery Act, an act regulating the practice of Chiropody and the Narcotic Drug Control Law.

*Tuberculosis in Cattle.* It has taken a long time to secure proper Legislation in regard to Bovine Tubercular eradication. The present act became effective July 1, 1929.

Section 2 of the Act of 1929 provides in part as follows: All owners of dairy or breeding cattle within the State of Illinois shall submit their cattle for a tuberculin test upon the request of the Department of Agriculture and shall provide necessary facilities for making tests and lend such assistance as may be required by the Department. The direct expense of making such tests shall be paid by the Department.

Section 4 provides that if upon making any tests it shall appear that any such cattle are affected with tuberculosis, it shall be the duty of the Department of Agriculture to cause the destruction thereof, but no such cattle shall be destroyed without the consent of the owner. All cattle found tubercular shall be branded on the left jaw with the letter "T". The animals shall be quarantined. If the owner consents to the destruction, appraisal shall be made.

It is unlawful to sell or purchase any cattle known to have reacted to the tuberculin test until they have recovered.

The reluctance of the owner of cattle to have them tested is based largely on fear. He thinks possibly the cattle will be found infected, which would result in loss. The other source of fear is that a perfectly healthy cow may become infected and it is very difficult to persuade him to the contrary.

Tuberculin is essentially the clear, sterilized fluid, derived from broth cultures of the tuberculosis bacillus. It is entirely free of tuberculae bacilli and of harmful bacteria of all

kinds. It never does a healthy cow the slightest harm. It does not even hurt a tubercular animal but merely shows that she has the disease and ought to be slaughtered in the interest of community health.

There have been some law suits against the official bodies concerned by disbelievers in the efficacy of tuberculin testing, but these have all been decided in favor of the Department of Agriculture.

One of the interesting statutes of Illinois refers to the practice of beauty culture. This is considered lawful if done for cosmetic or beautifying purposes and not for the treatment of disease or of muscular or nervous disorder. These beauty culturists must be licensed.

The Legislature has also seen fit to regulate the business, art and avocation of a barber. This is under the Department of Registration and Education as is also that of beauty culture.

In *Wiedeman v. Keller* 171 Ill. 93, the question arose whether a retail dealer in meats and provisions for consumption is to be regarded as a warrantor, that the goods are sound, wholesome and free from all defects that may injure the health of the purchaser.

The Court holds: "That public safety demands that there should be an implied warranty on the part of the vendor that the articles sold are sound and fit for the use for which it was purchased and that the lack of knowledge by the retailer of the impure or tainted condition of such goods is no defense to an action for damages."

An interesting decision was recently rendered by the United States Supreme Court in the case of *New State Ice Company v. Ernest A. Liebmann*.

The Court held that the business of manufacturing, selling and distributing ice may be subjected to appropriate regulations in the interest of Public Health.

In the course of the opinion the Court states: "The business of manufacturing, selling or distributing ice, like that of the grocer, the dairyman, the butcher or the baker, may be subject to appropriate regulations in the interest of public health."

While the decision was really upon another question, the Court plainly indicated what their ruling would be in any case where there

was a question as to appropriate regulations in the interest of the public health.

Some statutes contain provisions which hardly seem necessary for the conservation of health. For illustration: An Illinois Statute provides that in every room in any lodging house, boarding house, tavern, inn, or hotel containing more than one bed, the beds shall be so arranged as to leave a passage way of not less than two feet horizontally on all sides of each bed and they shall be arranged that under each of them the air shall freely circulate. One western State passed a law providing for the length of sheets.

There are a number of provisions in the Statutes concerning health whose enforcement does not appear to be in the hands of the health department. For illustration: The state factory inspectors seem to have jurisdiction over the health of employees in all industries which they inspect. Again, mine inspectors look after sanitary conditions in the mine.

While the Statute on Ophthalmia Neonatorum places the subject under the jurisdiction of the State Board of Health, the Act is found in the Criminal Code. Any diseased condition of the eye of an infant in which there is any inflammation, swelling or redness in either one or both eyes apart from the natural discharge of the eye within two weeks after birth is known as ophthalmia neonatorum. It is the duty of the physician, surgeon, obstetrician, midwife, nurse or hospital or indeed any person assisting at birth, observing this condition to immediately report to the health authorities, who report to the State Board of Health, which in turn provides for the gratuitous distribution of a scientific prophylactic, together with proper directions for the use of the same. Violation of the Act subjects the guilty person to a fine of not less than \$10.00 nor more than \$100.00.

*Sterilization.* Somewhat akin to the matter of public health is sterilization of the feeble-minded. This law is in effect in some States. The Supreme Court of the United States in a Virginia case has held that:

"The state may provide for the sterilization of a feeble-minded inmate of a state institution who is the daughter of a feeble-minded mother and the mother of an illegitimate feeble-minded child, where it is found that she is the probable



potential parent of socially inadequate offspring likewise afflicted, and that she may be sterilized without detriment to her general health, and her welfare and that of society will be promoted by her sterilization."

The Supreme Court of the United States in a decision rendered at the October Term, 1924, discusses the liability of a physician under the Harrison Narcotic Law. This Law is essentially a revenue measure but, as a matter of fact, its operation is almost entirely directed to regulate the giving of narcotics by physicians to patients. Every prosecution of physicians is based upon the question whether the physician is furnishing narcotics in improper quantities to regular addicts or not. The United States Supreme Court held in the case of *Linder v. U. S.*, decided at the October Term, 1924, that a physician cannot be prosecuted for delivery to an addict for self administration, four small tablets of morphine or cocaine for relief of conditions incident to the addiction. If the physician does from his own stock or by means of prescription enable one known to him to be an addict, to obtain from a pharmacist enormous quantities of the drug, the physician may be prosecuted.

Illinois has an Act regulating and limiting the hours of employment of females in certain industries, places of amusement, etc., to ten hours per day. The title to the Act recites that it is: "In order to safeguard the health of such employees."

The United States Supreme Court has held that the liberty of contract is not unconstitutionally impaired by such a Statute.

The case in which the question arose was a New York Statute, forbidding the employment of women in restaurants between the hours of ten at night and six in the morning. In this case the Court stated that it would not review the determination by the Legislature that night work in restaurants by women is so detrimental to their health and welfare as to justify its prohibition.

It would be interesting to detail efforts made to prohibit child labor in some states.

Though Acts of Congress have been passed prohibiting the passage in Interstate Commerce of goods manufactured by child labor, the Courts have held, and I think properly,

that such matters are within the sole jurisdiction of the states.

*Public Health Districts.* The General Assembly in 1917 passed an Act to authorize the organization of Public Health Districts and for the establishment and maintenance of a health department for the same. This Act provides that any town or two or more adjacent towns in counties under township organization, any road district or two or more road districts in counties not under township organization or a combination of the two may be organized into a public health district. Upon proper petition the question is submitted to a vote of the people. If favorable, a public health district is organized. In counties under township organization the board consists of a supervisor, assessor and town clerk in the case of a single town and in the case of two or more adjacent towns, the supervisors of such towns and the chairman of the county board shall constitute the board. In certain other cases other officers are provided. This board has power to levy taxes, appoint a public health officer, appoint nurses, chemists, experts, clerks and assistants, maintain laboratory and acquire real estate and personal property. The health officer has large powers.

For some unaccountable reason this splendid Statute has not resulted in the formation of many districts in the state.

A type of the successful working of a district of this kind may be found in the Hygienic Institute for LaSalle, Peru, and Oglesby, founded by F. W. Matthiessen, a public spirited and philanthropic citizen of LaSalle, Illinois, in 1913 and endowed by him. (The law in question was formulated and submitted to the legislature under direction of Mr. Matthiessen in 1917.) It was legally chartered for the purpose of protecting the health of the people of LaSalle and Peru Townships and for carrying on scientific research, particularly in the field of preventive medicine.

The present director is Arlington Ailes, M.D., C.P.II.

A summary of the activities of the Institute will show what could be accomplished and was intended to be accomplished by a public health district. The activities of the Institute may be summarized as follows: Physical examination of all school children; dental clinics,

maternity and infant welfare visits; pre-school hygiene; bedside nursing; maintenance of laboratory providing for diagnosis of typhoid, tuberculosis, diphtheria, gonorrhea, milk and water, and foods.

Particular attention is paid to communicable diseases, such as diphtheria, typhoid fever, tuberculosis, smallpox, scarlet fever, measles, whooping cough, mumps, chickenpox, influenza, epidemic meningitis. The Institute operates a venereal disease clinic. It has a department of vital statistics covering births and deaths, which gives also the ten leading causes of death, maternal mortality, etc.

The Institute also maintains a medical library for the benefit of the physicians in the Cities of Peru, LaSalle and Oglesby. It will be seen from the above what might be accomplished by Public Health Institutes organized under the Statute.

#### DISCUSSION

Dr. Crooks: I would like Dr. Ailes to give you a little account of the activities of the Hygienic Institute.

Dr. Arlington Ailes, LaSalle: I won't impose myself upon you by reciting the activities of the Institute. I haven't prepared anything. To talk about it would require too long a time and we don't have the time. Having just come from delivering a radio talk, I am at least temporarily radio-minded, but I do want to say that you have just been listening to Mr. Griggs, of Ottawa, who is a real public health authority and has been for years. He was the advisor to Mr. F. W. Matthiessen, who was a citizen of our community and who endowed this Hygienic Institute for LaSalle, Peru and Oglesby, and Mr. Griggs was his legal adviser and has been the legal adviser of this Institute ever since. When we get into trouble, he is our friend in need, and he even takes the Journal, A. M. A. and reads it regularly, so that he is of a sort of quasi M.D. You saw how fluent he is in his knowledge of public health. And he was the man who drafted this law which allowed districts to organize towns and cities. I believe Quincy is the only one in the State that has taken advantage of that law.

Dr. McShane: Berwyn and Quincy.

Dr. Ailes: I was very fortunate in getting Mr. Griggs to compile this paper, and he told me the other day he was getting lots of fun out of doing it. So we have him here. He is a pinch hitter, too, in our district. He gives radio talks, Rotary talks and other civic talks on short notice. Mr. Griggs has been interested in Public Health for years, and is peculiarly fitted to write this paper.

Dr. A. J. Roberts, Ottawa: In behalf of the profession that I represent, I want to thank Mr. Griggs for this able paper on public health measures. I want

to say that we have had our various scraps in Ottawa, and doubtless you all have, with the various cults and paths. They have tried to undermine our hospital. They have one foot in, I imagine through the connivance of attorneys and, if we are not careful, they are apt to get the whole body in, and it will destroy our nurses school of which we are very proud. We are just about to receive recognition as an accredited hospital in the American Hospital Association, unless these people are able to get in, because we are a municipally owned hospital, partially supported by tax measures. Mr. Griggs has always been a friend of the profession. I think it is true generally that the regular profession, whether it be medicine or veterinary, dental or law, stands together in our fight in these various cases that come up.

When we see these traveling dentists come through and undermine our regular dental profession, it naturally arouses the ire of the regular profession of medicine. When we find that these various cults are coming in and undermining the regular profession, naturally it arouses the antagonism of the profession. We have two cases in the courts right now where some of our allied professions, if you want to call them such, are treating people with drugs and the use of the knife and hypodermic needle, so far as they are able to do, even injecting varicose veins, and we have been informed by the health authorities that they have no license to do this sort of practice.

Mr. Griggs has always been with us in these scraps and we have appreciated his help.

He mentioned the matter of the sterilization of the mentally defective. I believe we should carry it still further. Not only every mentally defective should be sterilized but every criminal also. We are making efforts to improve the class of live stock. We are spending a lot of money in getting high-class horses and cattle but we don't pay much attention to the human race and until we do we are going to have an increased number of defectives. Our institutions in the State now are way over-crowded. Go down to Dixon or to Lincoln and we find they haven't room enough to take those that we want to accept from our various counties. Why should we increase this number instead of limiting the number?

I would like to say one word in behalf of the Hygienic Institute that he spoke of. It is really a model that every county in the State should adopt and I know that Dr. Ailes would be glad to give you an outline of this in a paper some time in the future for us to look to as a model by which we can all profit. It is doing a fine piece of work at LaSalle and we appreciate the work they are doing.

Dr. C. R. Smith, Decatur: I might mention Decatur. We have a hospital in our city, too. It is empty because the osteopaths, chiropractors and other cults want to take patients there. The doctors refuse to practice in the institution, because the irregulars were allowed that privilege. The doctors have all withdrawn their support, and the hospital has remained empty for probably over a year.



## FOREIGN BODIES IN THE RECTUM

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CHICAGO

In reviewing the literature with reference to foreign bodies in the rectum, we find that various objects from needles to silver ore have been inserted for various reasons, most of them being due to sexual perversion on the part of the patient. At times, depending upon the foreign body inserted, urinary retention may occur. I wish to report a case of foreign bodies in the rectum in which 1. urinary symptoms were manifested, and 2. the large objects which were inserted.

A male patient, sixty-four years of age, presented himself to his family physician stating that he could not urinate. He also said that he had inserted two glasses into his rectum six hours previous because of an itching in his rectum. Upon being asked to see the case, physical examination revealed some blood oozing from the anal orifice. Digital examination of the rectum revealed two glasses just beyond the internal sphincter; i. e., one glass telescoped into the other.

An attempt to catheterize the patient was without result because obstruction was met before the catheter could enter the urinary bladder.

The patient was taken to the hospital where an attempt was made to remove the foreign bodies after anaesthetizing the anal region by means of a 1% solution of procaine sacraly and later by a general anesthesia. The rectum was dilated as far as possible but we were unable to remove the larger glass although we were able to remove the smaller glass. The smaller glass measured two inches in diameter at its open end, and one and one-half inches at its lower end. It was three inches long.

In attempting to remove the remaining glass, part of the rim was broken off. To prevent the sharp edges from tearing into the mucosa, we inserted a retractor between the glass and the rectal wall at the region of the break.

A posterior slit was then made into the rectum severing both the internal and external sphincters and we were then able to remove the glass without any further damage to the rectal mucosa.

This glass measured two and one-half inches in diameter at its open end, two inches in diameter at its closed end and was four inches long.

The sphincters were then sewed. A small tube covered with gauze and vaseline was then inserted.

The patient left the hospital after two days.

## BLEEDING FROM THE ANUS

CHARLES J. DRUECK, M. D.

CHICAGO

The discharge from the anus of blood, mucus or pus is an alarming symptom frequently of ominous portent. It always disturbs the patient and bleeding from the anus is not only one of the most frequent signs of rectal disease, but next to pain is the most frequent cause of consulting a physician. Because bleeding is significant of so many conditions its appearance demands our careful consideration, although not infrequently patients call us excited over the color of the stool that has been altered by eating raw meat, blackberries, huckleberries, red wine, bismuth or iron. Bleeding is so commonly associated with hemorrhoids that one is inclined to take too much for granted and neglect to make a thorough investigation.

Blood escaping from the anus may be slight or profuse, occasional or frequent, it may occur during, in the intervals between, or after defecation. It may be discharged as pure blood, fluid blood or clotted blood, or it may be mixed with mucus, pus or feces. Inquiry must be made regarding these conditions and also whether it is mixed in with the feces or only streaks the surface of the mass.

The nearer the source of the bleeding is to the anus the brighter and fresher is the blood, and the further away, the darker and more clotted it is. Blood from the nose, mouth, throat or respiratory tract is usually digested, and hemorrhage from the stomach or small intestine is ordinarily coagulated and incorporated with the food residue and further altered by the action of digestive fluids as to have a black or brownish-black appearance, or may resemble coffee grounds. Sometimes however, if there is active peristalsis, or if the blood is in large amount, it may, even if coming from the upper part of the small intestine, pass so rapidly along that it issues almost unchanged with the stool. As a

general rule, however, bright blood in the defecation comes from the lower colon, sigmoid, rectum or anus, and from these sources is evacuated in a fluid or freshly clotted state.

The bleeding may come from only one blood vessel or from numerous bleeding points or ulcerations, and may be arterial or venous.

The general appearance of the patient is often an index of the importance and severity of the hemorrhage, sometimes the pallor and constitutional disturbances being recognized before the blood appears in the stools. Profound anemia following bleeding from the bowel is of frequent occurrence, and very often immediate transfusion, followed by prompt attention to the lesion causing the bleeding is the only thing that will save the life of the patient. The important fact is, that blood appearing on the fecal mass or voided regardless of its relation to defecation is pathological and is an imperative demand for a thorough rectal examination. The amount or character of the blood lost are no indications of the gravity of the situation, and, although a sharp, severe hemorrhage may demand immediate treatment, the lesser show of blood may be of more serious import and demands fully as careful investigation. Bleeding from the anus is so common that many individuals neglect it long before consulting a physician, and moreover, the physician when consulted may neglect adequate examination so long that serious hemorrhage and even exsanguination may result before proper treatment is given to it. For similar reasons carcinoma is often overlooked until it is too late.

Patients who present the ominous symptom of hemorrhage may occasionally suffer from a benign lesion, and the disease may run a propitious course. The diagnosis of benign bleeding, however, must never be hazarded until all available examinations have excluded the presence of blood dyscrasia, malignant neoplasm or chronic inflammatory process, such as tuberculosis. It is unwise, furthermore, to advance this diagnosis unless the benign lesion can be visualized by direct inspection or palpation. Indeed, even in cases in which a malignant process has been excluded and a benign process demonstrated, the cautious diagnostician will proceed with the knowledge that the patient with a benign cause

for bleeding may harbor a malignant disease as well.

Occasionally a single hemorrhage, modest or profuse, is experienced, the origin or causation of which may always remain undetermined.

In the anal canal trauma, fissure, ulcers and hemorrhoids may give rise to blood-covered stools, particularly if the feces are dry and lumpy. Indeed the latter condition alone, in the absence of rectal disease, may abrade the mucous membrane of the rectum or anus so as to cause bloody feces. In children and feeble-minded subjects the possible laceration of the mucous membrane by injury with a foreign body or a large hard fecal mass should be borne in mind.

Thrombotic hemorrhoids frequently rupture of their own accord; and when part of the clot remains protruding, the wound is kept open and is accompanied by a constant oozing of blood until remedied by completely turning out the clot and trimming the edges of the wound.

Fissures or ulcers of the anus cause arterial or venous bleeding, the severity of which depends upon the extent of the lesion and the size of the vessels involved. It usually occurs with every defecation. Patients with fissure give a history of straining at stool, passing a very hard fecal mass, followed by a burning pain and some blood. Some individuals lose only a drop of blood, others a streak of blood on the fecal mass, and others a considerable amount of blood which trickles down the leg. The deeper the ulceration the more severe the bleeding.

Chancres, chaneroids, and condylomata bleed very freely when friction is applied by the use of paper after defecation. Condylomata bleed easily, due to friction produced by a fecal movement, by walking, or by rubbing against the patient's clothing, usually when fragments are broken off.

Nearly all rectal disturbances cause some hemorrhage, and the fact that an external abnormality such as a fissure exists does not preclude disease above the sphincters.

Bleeding occasioned by the traumatism of an anal fissure or the ulcerated opening of a fistula is small in amount and irregular in occurrence. In both of these conditions the bleeding may be only sufficient to stain the toilet paper. The contraction of the sphincter muscle closes the blood vessels and prevents much loss of blood.



Persistent bleeding after each bowel movement or that occurring independently of the act of defecation indicates that the source is within the bowel and may be:

1. Internal hemorrhoids very often bleed owing to severe straining at stool followed by rough handling with paper, or when a hard fecal mass is propelled through the rectum and anus, denuding the surface of the greatly enlarged hemorrhoids, engorged with blood to the bursting point. There may be only the expression of a few drops of blood, but sometimes the bleeding is so severe as to cause fainting from exsanguination. Frequently on anoscopic examination, one can see the blood spurt from the ulcerated hemorrhoid. Bleeding from hemorrhoids is usually venous. It may be slight and noticed only on the paper, or it may ooze from the anus for a short time after defecation, or it may be so profuse as to cause the patient to faint from loss of blood while at stool, and become so exsanguinated that death may ensue before the bleeding ceases or can be arrested. When the bleeding is profuse and occurs at frequent intervals, the patient may become profoundly anemic, lose weight, become incapacitated, stimulate cachexia, assume a pale yellow and waxy appearance, become nervous and melancholy; or want to sleep most of the time; and only after operation with or without transfusion, when the patient notices an increase in weight and improvement in color, can he be convinced that he is not suffering from a malignant growth or other incurable disease.

2. Prolapse of the rectum when large and protruding is bruised by the rubbing of the patient's clothing, or when an attempt is made to reduce it and bleeding will often follow.

3. Erosion or ulceration of the rectal wall such as an ulcerated hemorrhoid, or a rectal ulcer (tuberculous, syphilitic, dysenteric) may cause a sharp hemorrhage.

4. Cancer of the rectum or sigmoid, rarely higher up in the bowel, bleeds small quantities of fresh or altered blood in almost every case sooner or later. Severe bleeding may be found, due to the destruction of tissue becoming so deep that it invades the large bloodvessels, sometimes resulting in death from exsanguination. The frequent, offensive and painful stools and the

findings by digital and instrumental examination usually reveal the source of the blood.

5. Stricture. The bleeding occasioned by the escaping of the feces past an obstruction usually is small in amount and streaks the stool with sometimes a little loss of free blood after the evacuation. This is regardless of the cause of the obstruction, which may be due to catarrhal disease, tumors of the rectum, or syphilitic or mechanical strictures; but when ulcerating, necrosing masses of tissue are occasionally torn off by the passing mass during defecation, as in cancer, benign tumor or tuberculosis, a very serious hemorrhage may occur.

Cancer of the rectum is usually carcinoma. Sarcoma of the rectum or colon is very rare, and when it occurs, hemorrhage is not a prominent symptom. Saphir<sup>1</sup> reported a large-celled sarcoma.

6. Polypi bleed at every stool, and this bleeding is caused by the erosion of the surface by the fecal mass. They are most frequently found in children. Hemorrhoids are very rare in children, but when a mother says that her child has hemorrhoids or that a hemorrhoid protrudes at stool accompanied with blood and then returns spontaneously or must be returned with the finger, one may be sure that the child is suffering with a single polyp. They are usually low down and can be reached by the finger, or when pedunculated, may be high up and can be located by proctoscopic examination.

7. Multiple polyposis or adenomata are numerous, soft, do not protrude, but give rise to colicky peristalsis, due to an effort on the part of nature to expel them. These evacuatory movements are attended with much blood and very often with a prolapse of the rectum, which, on account of the size of the mass due to the number of polypi, frequently require the services of a physician to reduce. It is important that this condition should be promptly recognized for, if neglected, it usually degenerates, within two or three years, into adeno-carcinoma, in about 50 per cent. of the cases. Constipation is an early symptom followed by diarrhea, with blood, mucus and tenesmus, loss of weight and anemia.

8. Villous growths bleed freely during defecation, but these are very rare.

*Colon Lesions:* 1. Intussusception of the sigmoid with its repeated traumatism, from the

straining during frequent attempts at defecation, results in inflammation, ulceration and blood with every stool.

2. Strangulated hernia, and, in children, intussusception should be suspected, the latter especially, in the presence of blood-stained stools composed principally of mucus and attended with tenesmus. The sudden appearance of a painful, abdominal tumor (usually in the cecal region), vomiting and severe constitutional manifestations suggest the diagnosis.

3. An acute and unusually severe colitis in children may manifest itself by blood-streaked stools. The various forms of dysentery may have stools which have the appearance of rusty-red fleshy lumps.

Enteritis, the mild follicular or the severe ulcerative form, often produce bloody stools. The associated symptoms, diarrhea, mucus and pain, together with the etiology, dietetic error, typhoid fever, ameba histolytica, must determine the nature of the enteritis.

Hemorrhagic proctitis occurs usually in young adults, and is the cause of profuse bleeding from the rectum with every stool. The blood is bright red and usually in sufficient quantity to produce a severe anemia in the patient. The condition is frequently diagnosed as piles and the patients are often subjected to two or more operations, presumably for hemorrhoids, until a proctoscopic examination shows a dark-red, spongy, ulcerated mucous membrane with blood oozing from numerous ulcerated areas, the whole surface covered with patches of mucus. Ten to fifty stools per day may be voided, many of them nothing more than a small quantity of blood and mucus. In these cases, only the lower four or five inches of the bowel are involved, and the condition is not accompanied with any rise of temperature, as in hemorrhagic colitis, which is generally caused by a pneumococcus infection. These cases are best treated by swabbing the hemorrhagic areas with fuming nitric acid to produce fibrosis followed by a superficial sear, which toughens the mucous membrane, and which prevents any further abrasion that may cause bleeding. Rectal irrigations of 5 per cent. nitrate of silver, or of the colorless hydrastis solution, and calcium lactate or chlorid internally, may be of service.

Cancer or ulceration of the large or small in-

testine, from whatever cause, as well as the perforation resulting from such ulceration, may explain the appearance of blood in the feces. According to Grainger Stewart, amyloid disease of the intestine may cause hemorrhage.

Corrosive poisons, especially arsenic, phosphorus and bichloride of mercury, may determine the presence of streaks of blood in the passages.

4. The rupture of an aneurysm of the abdominal aorta into the alimentary canal serves to explain some cases of large hemorrhage from the bowel. Aneurysm or thrombosis of the superior mesenteric artery, to which attention has been directed by Watson and Elliott, is a condition which produces tarry or bloody stools.

5. Engorgement of the portal circulation from cancer or cirrhosis of the liver, or auto-toxic states such as cholemia and uremia, or as the result of valvular disease of the heart, pulmonary emphysema, or portal thrombosis, demands consideration as a cause of intestinal hemorrhage. In jaundice, whatever its origin, blood may be contained in the stools. In a number of systemic diseases, among them yellow fever, pernicious malaria, dengue, acute yellow atrophy of the liver, septicemia, pyemia, scurvy, tuberculosis and typhoid fever bloody stools may occur in the course of the disease. In typhoid, the passage of mucus streaked with blood is often a warning signal of impending perforation and hemorrhage. Intestinal hemorrhage may be a symptom of leukemia, hemophilia, purpura hemorrhagica and in the occasional sudden diarrheal attacks of exophthalmic goiter, bloody mucus is sometimes present. Intestinal hemorrhage not due to tuberculous ulceration may appear as an intercurrent event in pulmonary phthisis.

6. Injuries of the abdomen, 7. intestinal parasites may give rise to bleeding from the bowel.

8. Hemorrhage may be incident to various neuropathies, 9. vicarious menstruation and 10. burns.

Operations about the anus and rectum are always accompanied by a certain amount of bleeding, the amount depending upon the length and depth of the incision. Incisions placed at right angles to the bowel cause more bleeding than those made parallel to the long axis. When the



bowel is cut at right angles, some of the hemorrhoidal veins and their branches are severed; but when cut parallel to the long axis of the bowel, the incisions are made parallel to and between the vessels, and without injury to them. This accounts for the severe bleeding produced in the cuff operation for prolapse, and in the Whitehead operation for hemorrhoids.

Primary hemorrhage usually occurs during an operation when a vein or an artery is severed and is very profuse, but capillary oozing is easily controlled by pressure. Bleeding may be caused by overlooking a bleeding point during an operation, or because the surgeon thinks that he can control the bleeding by pressure. Some patients bleed easily, due to the diminished coagulability of the blood, or due to some vaso-motor disturbance.

Recurrent hemorrhage is more serious, and generally takes place when a vessel has been injured during an operation and is overlooked, or when a ligature slips or has been improperly or insecurely tied. This takes place within a few hours after operation.

Secondary hemorrhage takes place a few days after the operation (usually five to eight days, when a ligature has cut through a blood-vessel, or it may follow sloughing or ulceration due to burning or pressure necrosis. This occurs in anemic, debilitated patients in those who have coughing, or sneezing, or other conditions causing severe straining or tenesmus; or where the bandage which is supposed to produce pressure is lost when transferring the patient from the operating table to the carriage or from the carriage to his bed; or when the patient, in coming out of his anesthesia, unconsciously plucks away the dressing and releases the pressure bandage. The bleeding in these cases comes on suddenly, is very profuse, and, unless immediately stopped, may prove fatal. Secondary hemorrhage may also occur in the extensive sloughing produced by injection of carbolic acid or in using strong solutions of quinin and urea hydrochlorid for local anesthesia, or in ulceration due to burning or pressure necrosis. Frequently bleeding may be internal, that is the blood flows up into the bowel and is held above the sphincters, and may be fatal while nothing is noticed from the

anus. Slight bleeding or oozing may be easily arrested. Profuse hemorrhage is always accompanied by well marked and classic symptoms. The external evidence of bleeding is a sudden gush of blood from the rectum, which saturates the dressings and even the bed, and on removal of the dressings a stream of blood will be seen issuing from the anus. When the hemorrhage is internal, large quantities of blood accumulate in the rectum, become clotted and cause a desire to go to stool, and there is an evacuation of liquid or clotted blood or both; and when retained for any length of time it has a coffee-ground color and a foul odor. This may be accompanied with colicky pains and tympanites along the entire course of the colon, due to the decomposition of blood and to gas formation. Frequently internal bleeding manifests itself by an intense desire to urinate, with an inability to void due to distention of the bowel. If this form of hemorrhage is not quickly discovered and arrested, the patient gets a death-like pallor, has an anxious and worried look, calls for much water, gets air-hunger, becomes faint and then unconscious. The pulse becomes rapid, but is soft and thready, gradually becomes imperceptible, the patient collapses and dies of complete exsanguination.

#### MAGGOT TREATMENT OF OSTEOMYELITIS\*

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During the World War, Dr. William S. Baer had occasion to treat two soldiers suffering from compound fractures of the femur with large flesh wounds. These patients had been exposed on the battlefield for seven days and they were found to be in a deplorable condition, with their wounds filled with maggots. Upon the removal of the maggots, Baer was surprised to find the wounds to be clean with healthy granulation tissue forming.

In 1928, in view of this wartime experience, Dr. Baer employed maggots in the treatment of several cases of chronic osteomyelitis in which there had been repeated operation and recurrence, extending over a period of from one to five years. He reported that in all of these cases

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healing occurred in about six weeks; but, inasmuch as there had been no attempt at sterilization, there was secondary infection in some of these cases, with tetanus and the gas bacillus of Welsh being the chief bacterial offenders. Baer was surprised to note, however, that while gas bacilli were found in the wound, they appeared to cause no systemic reaction.

Experimenting on a group of guinea pigs, he traumatized the bone and periosteum and injected gas bacilli into the wounds. The animals promptly died from gas bacillus infection and gas bacilli were recovered from their organs. Then six other guinea pigs were inoculated in the same manner and the wounds were tightly closed so as to make them as nearly anaerobic as possible. At twelve hours, sixteen hours and twenty-four hours later the wounds were opened and maggots were introduced. All of these animals made rapid recovery with complete function of the infected parts. Baer's inference was that maggots would overcome gas bacillus infection in a wound provided the maggots were free from gas bacilli when inserted into the wound.

In his cases of tetanus infection, the wounds were immediately cleansed and antitoxin was given. Two of the patients with tetanus infection developed severe symptoms and one of them died. This impressed Baer with the necessity of developing some method by which sterile maggots could be obtained. He found that the outside of mature maggots could be sterilized; but that the bacteria in their intestinal tracts would continue to contaminate the wound. It was found that the best method was to sterilize the eggs.

By sterilizing the eggs and permitting them to develop on sterile food, it was possible to produce sterile maggots. The eggs were sterilized by placing them in a solution consisting of 1 to 2,000 bichloride of mercury, 25 per cent. alcohol and one-half of one per cent. hydrochloric acid. The eggs remain in this solution for thirty minutes, after which they are washed with sterile distilled water. They are then placed in an incubator, on sterile food, consisting of ground beef, ground liver and yeast, previously sterilized in an autoclave. The eggs hatch in from eight to twenty-four hours, forming the larva or maggot. The larva

changes into a pupa in from five to seven days and the adult fly emerges in from seven to ten days.

Regardless of the care in preparation, the sterility of the maggots should be proven by culture before they are used. This may be done by taking a scraping of the food including one or two maggots, crushing them and making both aerobic and anaerobic cultures. If desired the maggots may be stored for several days by placing them in bottles containing sterile food, in a refrigerator at a temperature of 40 degrees Fahrenheit. At this temperature they become inactive and cease to grow.

In preparing the wound for maggots, it must be borne in mind that, while maggots have a remarkable appetite and have a predilection for necrotic tissue, there is a definite limit in the amount of food they can ingest. The surgeon must do his part. This means that a wide exposure of the infected part must be made with as complete removal of all necrotic tissue as possible. It is only expected that the maggots will clean up what the surgeon is unable to remove.

No antiseptics should be used in the wound as they would impair the effectiveness of the maggots. The wound should be packed with vaseline gauze for twenty-four hours to control hemorrhage. The skin surrounding the wound is then covered with a layer of collodion to protect it from secretions and to prevent the itching sensation caused by the maggots crawling over the surface. The wound is then filled with sterile maggots.

Maggots, as obtained from your laboratory, usually come in bottles containing approximately 1,000 with sufficient sterile food to maintain them. They are packed in dry ice for shipment so that they are at about a two-day growth when they arrive. The bottle should be filled with cool saline solution and the maggots poured onto a piece of gauze. They can then be gently scraped into the wound. Possibly an easier method is to trim the excess gauze leaving only the small portion containing the maggots, and laying this on the margin of the wound. The maggots can then crawl into the wound themselves. The gauze should not be placed directly in the wound,



as it would act as a plug, shutting out the light and tending to dam up secretions.

A wire cage is next fastened over the wound to imprison the maggots. This cage is made of very fine bronze wire of about 80 mesh. A coarser mesh will permit the small maggots to escape. Strips of sponge rubber should be fastened to the edges of the screen to assure close approximation with the skin. It is best to use strips about an inch wide which have been split longitudinally. The edge of the wire mesh is inserted between the rubber and sewed snugly. The cage should be fastened firmly over the wound with adhesive strips and the wound should be observed daily to see that the tape does not become loosened. If a coarser screen is used, it is necessary to cover it with muslin for twenty-four hours to confine the maggots; but after that time, they will have grown sufficiently so that the muslin covering may be removed. It is better to have the cage open and exposed to the light and air, as the maggots seek the dark and will burrow more deeply.

The maggots may be left in the wound for five days, at which time they should be removed as they will soon change into the pupa stage. The wound is irrigated with saline solution and the maggots are washed out as thoroughly as possible, those remaining being picked out of the wound with forceps. A few will remain buried in the tissues, but will wander out during the course of the day and can be removed at the next dressing. It is well to allow two or three days to elapse between plantings so as to permit the skin to recover, as there is usually some redness and excoriation due to the secretions from the wound.

During the interval between implantations, the wound should be packed with vaseline gauze to keep it well opened. A prophylactic dose of anti-tetanic serum should always be given at the time of the first implantation as a matter of extra precaution.

There is usually a profuse, serosanguineous discharge from the wound while the maggots are present which promptly subsides when the maggots are removed. There is also usually a rapid rise of temperature to 102.5 to 103 degrees; but this also subsides with the removal of the maggots. The treatment is not without pain; but it is rarely necessary to resort to

opiates provided the skin has been properly protected. This pain is described as a sharp, intermittent stab, similar to many small electric wires in which the current is turned rapidly off and on.

Under this treatment, it is surprising how quickly wounds become clean and begin to heal from the bottom with healthy granulations with cessation of the discharge of pus. It is generally believed that two factors are responsible for these results. Aside from the mechanical action of the maggots in ingesting and digesting the necrotic tissue, it is believed that an active principle is developed by the maggots when in contact with the tissues. This is probably an autogenous bacteriophage. Working on this theory, Livingston and Prince, of Hines Hospital, have succeeded in obtaining this active principle by grinding live maggots in sterile saline solution and passing this through a Berkefeld filter. They report several cases, treated with this active principle, which have responded favorably. In some cases they made use of an autogenous vaccine in connection with it.

In tuberculous osteomyelitis, the reaction appears to be much more pronounced than in the ordinary type. Often the temperature rises to 105 or 106 degrees and frequently it has been found necessary to remove the maggots on the third or fourth day on account of this severe reaction. These cases are usually very chronic, with sinuses which have drained over a period of years and they present the usual picture of cachexia and anemia. It is probable that the distinctly lowered resistance of the patient accounts for the unusually severe reaction. However, the sinuses fill in rapidly with healthy appearing granulation tissue and the wound soon closes. In fact, it has seemed to me that these wounds are disposed to fill in too rapidly for the chronic type of infection and I am of the opinion that it may be wiser to pack the wounds frequently and to slow up the healing process.

The following case fairly represents the typical course in the maggot treatment of tuberculous osteomyelitis. The patient is a male, aged 16 years, with multiple sinuses of the left hip which had been draining for three years. The patient was operated on Nov. 20, 1931, at which time the sinuses were opened widely and a large amount of scar tissue was removed. No necrotic bone

was removed. Four implantations of maggots were made at weekly intervals. The reaction was severe after each implantation, with temperature ranging from 103 to 104 degrees. Maggots had to be removed from the wound after three days because of this severe reaction.

After the fourth implantation, the wound had filled to a point where it was not practicable to continue the maggot treatment. It was noted at that time that the granulation tissue was soft and spongy and it was thought that the wound would not remain healed. Two weeks later the wound opened for the second time and six more implantations of maggots were made. This time the wound took on a more healthy appearance and solid granulation filled the wound and completely closed it with the exception of a very small sinus which no longer discharged. It is quite possible that this small sinus will close in the near future.

The patient's general condition has improved materially since the treatment was undertaken. He has gained five pounds in weight and his red count has increased from 3,600,000 to 4,800,000. The white count is normal and the hemoglobin has increased from 70 to 80 per cent.

In a series of fourteen cases, in all of which there have been draining sinuses for from two to nine years, about 40 per cent. are completely healed while the remainder, with one exception, have a single small sinus with no discharge. In one case, with extensive involvement of the tibia, there is an active sinus draining from the lower epiphysis. This is probably due to too conservative surgical treatment in an attempt to save the ankle joint. This case will require a second operation.

While the maggot treatment is not to be expected to cure tuberculous osteomyelitis, the striking feature in all cases has been the rapid and pronounced improvement in general health.

There has been definite gain in weight and strength in all cases. The secondary anemia has shown constant improvement, the increase in red cells averaging 1,000,000 in the course of four to six weeks, with a like increase in hemoglobin. In several cases in which there was leucocytosis, the white count has returned to normal. At least, this method of treatment will prove a valuable aid in the treatment of tuberculosis osteomyelitis, by clearing up the secondary infection and in allowing nature a better opportunity to combat the primary disease.

#### REFERENCES:

- W. S. Baer, *Journal of Bone and Joint Surgery*, July, 1931.  
Livingston and Prince, April 2, 1932.

#### DISCUSSION

Dr. J. A. Cousins, Chicago: It seems as though the lowly maggot is coming into its own by the work of this group. We tried it in one case of luetic osteomyelitis. It seems that this type of case was disagreeable to the maggots and we could not keep them in. They burrowed under the adhesive tape, under the skin and out from under the adhesive. We found them in the bricks we used for elevation of the bed. After the patient went home she told me she found the maggots in her clothes.

Dr. S. L. Governale, Chicago: I would like to ask Doctor Staben if he uses the method in joint diseases. When Dr. Livingston delivered his first lecture on maggot therapy he informed us not to use it in joint tuberculosis or joint diseases of any sort.

In one case of mine of osteomyelitis of the olecranon process where the entire bone was destroyed, the maggot treatment was employed with good results.

Five applications of maggots were necessitated to arrest the pathology of the olecranon process. The wound was completely healed in five and one-half weeks.

Lieut. Commander M. D. Willcuts, Great Lakes: At Great Lakes we have used the maggots and their active principle for the past two years and we had very good results we thought. Lately we are finding recurrences after apparent arrest or cure for 15 to 18 months. In lesions of the sternum and of the skull, the maggots cannot be safely employed because they may crawl into spaces such as the mediastinum and epidural. We have been favorably impressed with the active principle as a stimulant to promote granulations.

Dr. G. W. Staben, Springfield (closing the discussion): In regard to the maggots not staying in the wounds, I have not had any personal experience. I think Dr. Kreuscher made some suggestions as to bleeding and excessive secretion which may explain why they did not stay in. Other than that I do not know why they did not stay. I have had an occasional implantation that would not live. Ordinarily they live.

About using maggots in the joint, I have used them in tuberculosis of the hip and other joint cases and they have had no bad effect upon the joint. As Dr. Kreuscher said, you cannot put a mass of maggots in an old sinus and expect them to clean it up. You have to clean it up surgically.

I agree with Dr. Kreuscher in regard to the active principle. I hope that is going to be ultimately worked out so that we will not have to use the maggots but will have a method of treatment that will be less disagreeable to the patient.

In regard to the recurrences, my cases are relatively over a short period. I have not been using the maggots any longer than eight or nine months. I have been using the maggots more in tuberculous osteomyelitis than in the ordinary type, though I have used it in some of the latter. I do not want to leave the impression that I believe the maggot treatment in tuberculous osteomyelitis is going to cure tuberculosis of the bone. I do not think it will do anything of the sort. The thing that impressed me is the rapid improvement in the



general condition of the patient. I think it will clear up the secondary infection in a much shorter time and then leave us free to fight tuberculosis. Almost invariably there has been a marked improvement in the general condition of the patient, both in appearance, blood count and weight. All those things are to be considered.

## A CRITICAL STUDY OF THE VARIOUS PREGNANCY TESTS\*

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Positiveness in the diagnosis of pregnancy is always to be desired, but it is not always attainable. To differentiate between early pregnancy, ectopic or intrauterine, and the pathological and physiological conditions that simulate the pregnant state requires skill that even the most expert obstetrician at times finds himself lacking. This same condition likewise prevails in late pregnancy when ovarian cysts and uterine fibroids complicate the picture.

Some of the more common conditions that, because of the attendant amenorrhea, often mimic pregnancy are: pulmonary tuberculosis, primary and severe secondary anemias, psychosis, endocrine and metabolic disturbances. Similarly abnormal bleeding associated with salpingitis is frequently attributed to ectopic pregnancy. Early menopause and the amenorrhea of lactation are sources of concern to patients.

Inability to always arrive at a definite conclusion in regard to pregnancy is due to a few easily understood factors. First, until recently there was no reliable information of value to be had in the first three months. Secondly, even in the latter months the positive signs of pregnancy, i. e., fetal heart tones, fetal parts and fetal movements might be absent or obscure due to the death of the fetus, the presence of too much fat, abdominal tumor, ascites, or failure of the patient to cooperate by relaxing the abdominal muscles and thus facilitate the examination. Thirdly, an important factor is the distortion of the truth by the patient—either if pregnant to cause the obstetrician unknowingly to produce an abortion or, if not pregnant, to obtain a positive statement from the examiner for ulterior

purposes. She may, therefore, give a history containing all the symptoms of pregnancy and may go so far as to attempt to produce fetal movements by contracting the abdominal muscles. In like manner the desire for children may be so intense that the patient is able to delude herself into the belief that she is gravid and thus relate a story to fit the exigencies of the case.

No effort will be made in this paper to go into an academic discussion of the signs and symptoms of early pregnancy, other than to name them and no effort to discuss those of latter pregnancy—since we are for the most part concerned with the diagnosis within the first trimester. Therefore, it is sufficient simply to mention only the signs and symptoms of this period: cessation of menstruation, morning sickness, salivation, bladder irritability, symptoms of pelvic congestion, change in disposition, formation of secondary areola, tingling in breasts associated with their enlargement and the appearance of lineae albicantes, bluish discoloration of the vulva, vestibule and vagina, softening of the cervix and change in form, size, consistency and position of the uterus.

In view of the fact that the above signs and symptoms are subject to error and hence not wholly reliable, it becomes obligatory to seek elsewhere for more positive information. This we find in certain laboratory and experimental work as uterography, x-ray and biological tests.

*Lipoidol-Uterography.* Uterography is the injection of an opaque media as lipoidol into the uterus and the taking of an x-ray picture immediately after. This test, because it is not devoid of danger, should be done only after a painstaking physical examination plus biologic tests have failed to yield the desired information.

The possibilities of such work in early pregnancy were first made known by Heuser and later accidentally observed by Nahmmacher. Since that time much work has been done in this direction and the literature is replete with both successes and failures.

Heuser states that the injection of lipoidol into a pregnant uterus does not interrupt the pregnancy. Nahmmacher is of the opinion, after much experience, that the injection in early months will not interrupt or disturb a pregnancy.

Jarcho's only reason for not using this method

\*Read before the John A. Andrews Clinical Society, Tuskegee, Ala.

was not through fear of an abortion but rather the fear of doing injury to the child. Arnstein, Reinberg, Schneider and Eisler likewise reported no abortions in their cases. Miller and Martinez report fifteen cases with three abortions occurring three, four and five days following injection. Rueker reporting on thirteen cases had only one abortion. In our series of twenty cases there have been no abortions to date. Ten cases have come to term and the children showed no ill effect, being apparently normal and well developed.

The antagonists of this method of diagnosis fail to realize that in early pregnancy after the ovum has become imbedded in the uterus the uterine cavity, as such, remains separate from the membranes and decidua. Hence the problem is to avoid injury by instrumentation to the decidua. This is accomplished by introducing, preferably a soft Nelaton catheter or a Keyes cannula carefully into the uterus and allowing the lipiodol to flow with the least possible pressure on the syringe.

Pregnancy is indicated on the roentgenograms by the filling defect or bulging in the cavity of the uterus. It is felt that with sufficient care and in selected cases uterography can serve as a diagnostic aid in early pregnancy.

*Roentgen-Ray.* The second source of reliable information is the roentgen-ray. Matthews has shown that exposure to the x-ray in the case of pregnancy is fraught with little danger to the fetus regardless of its stage of development. His report is based on roentgenograms of 306 pregnant women, some exposed 4 to 6 times and associated with follow-ups over a period of five years. It is his opinion that all of the proved cases of fetal malformations assigned to irradiation have been cases treated with therapeutic doses for pathological reasons and not simply for the making of a plate.

Murphy after some exhaustive work on the effect of x-ray in pregnancy on present and future pregnancies came to the conclusion that structural defects do occur to the offspring if irradiation is done after pregnancy has occurred but that there is no definite indication to prove that irradiation done prior to conception produces any ill effect on the child. In addition his work was done for therapeutic reasons and not simply diagnostic purposes.

As yet we have had no ill effect in any of our

eases and have not failed to make use of this procedure when indicated.

The conditions for which we used x-ray as an adjunct in diagnosis were, 1. early diagnosis of pregnancy 14 to 18 weeks when for any reason a positive diagnosis was uncertain; 2. multiple pregnancy; 3. diagnosis in the obese women of 200-300 pounds when it is impossible to outline fetal parts or obtain the fetal heart tones or palpate the uterus bimanually satisfactorily; 4. where a fibroid was suspected as complicating the pregnancy, and 5. whenever a monstrosity or polyhydramnion was suspected.

The results obtained, however, with roentgenograms are not always gratifying because even in the early months several factors act as inhibitory agents. The thickness of the mother's abdominal and uterine walls, the respiratory excursions of the mother, liquor amnii which is radio opaque, insufficient density of the embryonic bones, the circulating blood in the uterus and placenta, which Bartholomew estimates absorbs 60 per cent. of the rays, and movements of the fetus which blur the films, all tend to render the diagnosis uncertain.

Despite these hindrances, Matthews has quite definitely proven that in early pregnancy before the ordinary signs are of value the x-ray is of definite aid in that it yields a positive diagnosis from 14 to 15 weeks in 15 per cent. of the cases, 16 to 18 weeks in 75 per cent. and after 18 weeks 100 per cent. results. Stein and Arens after considerable experience and experimentation with x-ray as a diagnostic aid for pregnancy at three, three and one-half and four months and on to term, believe that it is impossible to arrive at an accurate diagnosis prior to mid term.

Our results have not been so promising but the success we have obtained warrants the belief that with better technique and equipment, this method of diagnosis will prove of inestimable value. The following cases typify our work:

Case 1, M. J. A 27-year-old primipara, who menstruated 3 months ago and who gave a history of having had no nausea and vomiting and no increased frequency of urination. Upon examination no colostrum was found in the breasts and no Chadwick's sign was present. The uterus was enlarged to the size of approximately a 3 month's pregnancy. She was referred to the x-ray department in order to differentiate between a fibroid and pregnancy. The x-ray report was negative for pregnancy.

Case 2, C. J. A para-II, who stated that she menstruated last June 28, 1930, was examined September



18, 1930. Because of obesity, 227 pounds, no definite diagnosis could be made. X-ray and lipoidol injection revealed no pregnancy but a fibroid.

Case 3. A middle aged primipara who gave a history of an amenorrhoea for  $3\frac{1}{2}$  to 4 months duration associated with slight morning nausea. Upon examination slight breast changes were noticed and the uterus extended almost to umbilicus. There was no fetal heart tones and no palpable fetus. She was sent up for a roentgenogram in conjunction with a biologic test and to rule out a uterine fibroid. The roentgenogram revealed fetal bones.

*Biologic Tests.* There are three biologic tests for pregnancy, one of which seems more reliable than the other two and none of which constitutes any danger either to the mother or the fetus. From a conservative viewpoint these tests are of more value than those previously described. The rationale of them all depends upon the effect of either the anterior pituitary or female sex hormone contained in the blood or urine of a pregnant woman upon the generative organs of female mice and rabbits.

Any skepticism on the part of the medical profession toward this method of determining early pregnancy is not unwarranted for the enthusiasm was great a few years ago for the methods of Abderhalden, Kamnitzer and Dienst, all of which later proved faulty.

However, the most important of the biologic tests, that of Ascheim and Zondek, while only a few years old, has yielded excellent results for all who have experimented with it.

*Female Sex Hormone Test.* The female sex hormone test depends upon the demonstration of a mouse unit of female sex hormone in 10 cc of whole urine by the Allen and Doisy method. The basis of the test depends upon the succession of cell types found in the vaginal lumen of white mice during estrual cycle. The technique consists of injecting 2 cc of catheterized urine into two spayed adult mice five times over a period of two days and observing the vaginal spread—a spread showing a preponderance of non-nucleated squamous epithelial cells and an absence of leucocytes indicates pregnancy.

This test is not especially difficult to perform and is inexpensive, since the animals will endure five or six series of injections. The readings or interpretations of the spread must be accurate. The element of error is due to a faulty interpretation of the spreads and the abrupt and delayed reactions.

*Siddall Test.* This test depends upon the

effect of anterior pituitary and to a smaller degree upon the female sex hormone contained in the blood serum of pregnant women on the genital tract of immature mice.

One cc of blood serum is injected subcutaneously into an immature virgin white mouse for five days daily. On the sixth day the animal is killed, the uterus and the ovaries are dissected out in one piece, and their weight in milligrams is determined on a chemical balance. The weight of the mouse is divided by the weight of the ovaries plus the uterus and the resulting quotient determines the presence or absence of pregnancy. Such a quotient of 400 is indicative of pregnancy and above 400 is negative for pregnancy.

In addition to the increase in size of the uterus there often develops a corpus luteum and corpus hemorrhagica showing that even in the blood stream the anterior pituitary hormone is present and contributes in no small measure toward the enlargement of the uterus in test animals. Hence the female sex hormone in the woman's blood stream are responsible for this uterine enlargement.

*Manoiloff Test.* Another test worthy at least of mention is Manoiloff's. This is a seroreaction suggested to be due to an increased  $P_H$  of the blood serum during pregnancy in which he claimed success in 92-96 per cent. of his cases. To .3 cc of fresh clear serum he adds 1 cc of 2 per cent. aqueous solution of theobromine sodiosalicylate, shakes the mixture, then adds a drop of .2 per cent. alcoholic solution of Nile blue and again stirs the mixture. From several minutes to an hour the mixture decolorizes and appears yellow or pinkish yellow if the woman is pregnant; if not pregnant the mixture is blue, bluish or pinkish blue. This test, however, has proven unreliable since the color changes vary considerably and a clear differentiation between positive and negative is very difficult. Fretwurst and Otto using Manoiloff's technique found only one positive in 41 observations in the first trimester; 35 per cent. were positive in the second trimester and 61 per cent. in the third trimester. These workers discredit Manoiloff's theory that the reaction is due to an increased  $P_H$ . White and Severance are of the opinion that this reaction has little value as a diagnostic aid.

*Aschheim-Zondek.* The work of Erdheim and Stumme demonstrated that the hypophysis hypertrophied during pregnancy, while that of

Aschheim-Zondek showed that the anterior lobe secreted a substance capable of initiating growth of immature ovaries. The hormone is present in the urine and when injected in immature female mice or rabbits, ovulation occurs. This test is more reliable than most serologic tests in that the hormone is demonstrable in the urine in any case in which there is or has been a pregnancy and in the latter condition some of products of conception remain.

In mice the time required is 100 hours and the mice must be healthy immature females—3-5 weeks of age; older ones may not be immature and younger ones do not bear the injections well. The mortality rate of mice is at times quite high due either to the fact that the mice are too young or that the urine is toxic. Some urine, although not all, may be detoxified by the ether detoxicating method of Zondek.

The mortality rate in rabbits may be high, also, and here the toxicity of the urine plays an important role, as well as the lack of resistance of the animals themselves.

In all cases, whether mice or rabbits are used, the urine is a fresh morning specimen devoid of preservative. If rabbits are the animals used, the technique followed may be either according to Schneider or to Friedman. In the former method five to seven cc of properly collected urine is injected into the marginal vein of the ear of the rabbit, no sterile precautions being required. Thirty hours later the animal is killed and autopsied and the ovaries macroscopically, or, if in doubt, microscopically studied. If the Friedman method is the one of the choice then 4 cc of urine is injected intravenously into a nongravid mature female rabbit three times daily for two days and the ovaries are examined forty-eight hours after the first injection. Reinhardt and Scott have utilized a further change in the technique used, in that the rabbits are not killed but are laparotomized and used for subsequent tests. Regardless of the technique used the test is positive when corpora hemorrhagica or corpora lutea are found, and negative if only clear unruptured follicles are present. It should be remembered that the test to be reliable must be made on a healthy animal. The advantage gained by using rabbits is that the doe does not ovulate until she copulates, that the corpus hemorrhagica is not found in a non-pregnant rabbit and when found means that this reaction

is due to the presence of the anterior pituitary hormone found in urine of a pregnant woman.

With mice five are required to a test since with this number the source of error that might exist due to animal peculiarities is greatly minimized. Three cc of urine is injected subcutaneously two times a day for three days, 6 injections in all and after 100 hours the mice are autopsied and the ovarian changes noted. A positive diagnosis may be made as early as 5 days after the last menstruation. A pale grayish-pink mouse ovary about the size of a pinhead is a negative result. An ovary enlarged 2-3 times its normal size may or may not be red in color, and studded with yellowish or cyanotic protusions—corpus lutea and hemorrhagica is indicative of pregnancy. Microscopically the ripening of new follicles and luteinization of old ones is likewise characteristic of the positive reaction. It is not necessary to kill all animals since a positive reaction in the first mouse examined is sufficient for the diagnosis of pregnancy. However, if the first is negative or doubtful, all animals should be autopsied.

In our series the above technique was followed: Urine from known pregnant, known non-pregnant women, males and unknowns were used. In the case of unknowns the tests were completed and these reports checked with later examination of the patient when a clinical diagnosis could be made. The period of time after the last menses ranged from 5 days to 8 months. It was observed that the reaction was strongest in the early months of pregnancy, decreased as term approached and usually disappeared 1 to 2 weeks post-partuum.

*Results:* Aschheim reported an error of 1.6 per cent. in a series of 258 control urines. Robertson reviewing 2,368 cases as studied by thirteen different investigators reported an error of 1.47 per cent. Mazer and Hoffman found sixteen positive reactions in 164 observations on non-pregnant women. Mack has reported 98 per cent. accuracy on 500 Aschheim-Zondek tests. In our series of 350 cases we grouped them according to technique used. One hundred twenty-five observations were made with the Schneider technique, 125 with that of Friedman and 100 using mice as the test animals. Of the 125 observations made with rabbits utilizing Schneider technique, twenty-five were pregnant women, ten non-pregnant and 90 suspected pregnancies. In



the pregnant and suspected pregnant groups the reactions were positive and later clinical evidence confirmed the reaction. In the non-pregnant group two observations were positive.

Of the 125 examinations in which the Freidman test was used there were 25 pregnant cases, 90 suspects and 10 non-pregnant cases. Of this group the reaction agreed with the clinical evidence in each instance, except two cases in the pregnant group. However, when the test was repeated the reaction was in accord with the findings. Just why the reinjection of urine and subsequent examination of the ovaries thirty-four hours later will yield a finding reverse to a prior one, is uncertain; however, we feel that it is due to the variation in the concentration of the pituitary hormone in the pregnant woman.

One hundred observations were made using mice as the test animals. Seventy-five of these observations were made on suspected pregnancies and twenty-five on non-pregnant individuals. In the non-pregnant group there occurred five false reactions, two of which could be accounted for since one case was of chorionepithelioma, and one of pelvic inflammation. The causes of error in the remaining three cases possibly were due to the number of mice used and the number living at time of autopsy, for in some cases only two or three mice were used instead of five and since it is known that all mice do not react alike, it is quite possible that those who did react correctly died and the recalcitrant ones lived and to the compensatory pituitary hyperfunction associated with ovarian deficiency.

Case 1, M. W. Aged 37, para-IV, was seen in the out patient department February 19, 1931. She gave a past obstetrical history of 3 miscarriages, one at 3 months, one at 4 months and another at 4 months; the last one occurring January, 1929. She menstruated last October 28, 1930. On examination colostrum was found in the breast, the cervix was hard, and two masses were felt, one the size of a grape fruit lying in the cul-de-sac and a larger one extending to the umbilicus. An Aschheim-Zondek test advised in order to differentiate between fibroid and pregnancy or the presence of both, was negative for pregnancy. Four months later she was operated on for multiple fibromyomata of the uterus and no fetus was present.

Case 2, G. W. Aged 38, para-VI, came into the clinic July 10, 1931, complaining of cessation of menses, pain in abdomen, enlarged abdomen. Following an examination in April a diagnosis of fibromyomata uteri was made. Painless menstruation occurred regularly up until four months ago. Since that time morning sickness and nausea has been present and the breasts have been enlarged. She was examined by another

doctor who confirmed the previous diagnosis and thought that patient was pregnant in addition. He advised an Aschheim-Zondek test. Since cessation of menstruation, at the usual time of each succeeding period she has had severe cramplike pains but no menstrual flow. These attacks have increased in severity and four days prior to entry pains became very severe and bearing down in character occurring at regular intervals. So severe were these pains that the patient was unable to sit down and moved with the greatest difficulty. There was no bleeding but a spasmodic leaking from vagina and urethra. Menstruation began at 12 years, regular every 28 days, lasting from 4-5 days, last period March 18, 1931. She had one normal delivery and five abortions at two and one-half months, five months, one month, and six weeks. Physical examination essentially negative, except for an enlarged abdomen. A large nodular intra-abdominal mass extended about two fingers above umbilicus with one nodule distinctly felt just below the gall bladder and another about the size of an orange in the left upper quadrant. Between these two nodules was a soft globular mass, fluctuating, which did not extend to the height of the two nodules. In the left lower quadrant was palpated another mass about the size of a lemon extremely tender and movable. On vaginal examination the cervix was soft, patulous, 3 cm. in length and pushed up against the pubic arch. A large hard nodular mass firmly adherent filled the cul-de-sac and over 4/5 of the pelvic canal. Blood pressure 110/68, urine negative, red blood count, 3,890,000; white blood count 10,300; H. B. 80. An Aschheim-Zondek test was done which was positive for pregnancy. Before the test could be completed five mice, and six rabbits were used. A high animal mortality necessitated the use of this number of animals. Some of them died during the process of injection and others died from four to twelve hours later from what appeared to be an anaphylactic reaction. Because of the intense pain suffered by the patient, a laparotomy was done and a multiple fibromyomata uteri and a pregnancy of about four month's duration was found.

Case 3, L. J. Primipara, aged 33, entered for medical service at hospital December 30, 1930, complaining of discomfort in abdomen, frequent belching, headaches and amenorrhea, vaginal bleeding past two weeks and enlarging abdomen. Because of latter condition she was referred to the obstetric service. She had never had a regular menstrual history since menses began at 14, averaging 7-8 per year. Her last period was October 22-30, 1930, with spotting one day in November. She remained amenorrheic until December 17. At this time she began flowing and continued until December 22, 1930, when the flow became copious. Physical examination essentially negative except for hard nodular abdominal mass continuous with cervix and extending almost to umbilicus in mid-line. No fetal heart tones or souffle heard. No vaginal or cervical discoloration or cervical mucous plug seen. Urine negative, red blood count, 2,750,000; white blood count 13,600; x-ray negative for pregnancy. Aschheim-Zondek test was positive for pregnancy. January 8, 1931, patient complained of sharp intermitten pains transversely across lower abdomen associated with

passage of a few small clots. January 11, 1931, patient aborted.

Case 4, E. T. Primipara, aged 24, gave a history of having menstruated last June 1, 1930, and of no nausea and vomiting, dizziness, headaches and visual disturbances. An examination, February 19, 1931, revealed a slight uterine enlargement, a hard non-patulous cervix, no Chadwick's sign and no breast changes. An Aschheim-Zondek test was negative for pregnancy.

Case 5, M. C. Primipara, aged 23, came to the clinic October 12, 1930, with the history of having menstruated last July 20, 1930. No nausea and vomiting and no other symptoms of pregnancy. Examination revealed a uterus soft, enlarged, size of two months' pregnancy. Aschheim-Zondek test was positive.

Case 6, L. D. Primipara with a history of regular menstruation. She menstruated last, February 17, 1931; on the fourth day after the missed period the patient decided she was pregnant, and insisted that an Aschheim-Zondek test be made. No nausea and vomiting, no colostrum in breast. An Aschheim-Zondek test was positive and one month later patient aborted a two months fetus.

These cases are typical of some of the problems of diagnosis which may be readily cleared up by means of this test.

*Summary.* 1. The diagnosis of pregnancy either early or late is at times quite difficult.

2. Uterography, while potentially dangerous, yet when carefully done is valuable as a diagnostic medium in early pregnancy.

3. X-ray, though subject to technical difficulties, is of immense value as an adjunct in the diagnosis of pregnancy.

4. The biologic tests yield the more certain results and are devoid of danger to both mother and child. The Freidman or Schneider modification of the Aschheim-Zondek test is to be preferred to all other modifications because of its accuracy and availability of the animals used since rabbits are easier procured and it is not necessary to determine rigorously their weight. Moreover, it is not necessary to kill the animal and the same animal may be used in other experiments. The reaction is macroscopic and response is rapid, requiring only fifteen to forty-eight hours.

5. A negative finding does not preclude the possibility of pregnancy, repeated negatives are reliable.

#### CONCLUSIONS

1. Since all methods known up to present time for the diagnosis of early pregnancy are uncertain and unreliable, the obstetrician is justified in exhausting various laboratory tests for aid.

2. In the order of reliability and danger to fetus and mother the value of tests are in the following order: Biologic, x-ray and Lipoidol.

3. The Aschheim-Zondek is accepted as the most reliable of the biologic tests and most observers agree that its results are accurate.

#### BIBIOLOGRAPHY

Mazer, Chas., Hollman, Jacob: The Three Hormone Tests for Early Pregnancy. *J. A. M. S.*, Jan. 3, 1931, p. 19.

Allen, Edgar, and Doisy, E. A.: An Ovarian Hormone, Preliminary report of its localization. Extraction and Partial Purification and action in test animals. *J. A. M. A.*, 81, Sept. 8, 1923, 819.

Jarcho, Julius: Uterosolpingraphy. Further studies on the action of the Tubal Sphincter, a new syringe for Transuterine Injections and a report of the Therapeutic use of iodized oils within the uterus and fallopian tubes—*S. G. Ob.*, June 1928, 752.

Heuser, C.: Lipoidol in the Diagnosis of Pregnancy. *Lancet*, 1925, 11, 111.

Radiol. Brit. J.: 1926, XXXI, 110.

Mazer, Chas., and Hoffman, Jacob: On the occurrence of ovarian and anterior pituitary Hormones in Urine of Pregnant Women. *A. J. Ob. & Gyn.*, July, 1929, 48.

Leise, Grover, and Auer, Eugene S.: The Biologic Diagnosis of Early Pregnancy by the Aschheim-Zondek Test. *A. J. Ob. and Gyn.*, Nov., 1930, 637.

Mack, H. C., and Catherwood, A. E.: The Aschheim-Zondek reaction and hydatiform mole and malignant chorionepithelioma. *A. J. Ob. & Gyn.*, Nov., 1930, 670.

Nahmmacher, Hans.: The possibilities of Hysterosolpingraphy as a diagnostic and Therapeutic measure. *Surg. Gyn. & Ob.*, Jan., 1929, 1933.

Siddall, A. C.: The Hormone Test for Pregnancy. *J. A. M. A.*, 91:779, Sept. 15, 1928.

Idem: A suggested test for pregnancy. *J. A. M. A.*, 90, Feb. 4, 1928, p. 380.

Schneider, P. F.: A Hormone Test for Diagnosis of Early Pregnancy. *Surg. Gyn. & Obs.*, Jan., 1931, Vol. LII, p. 56.

Mack, H. C.: The Aschheim-Zondek Reaction for Pregnancy. Results in 100 cases. *Surg. Gyn. & Ob.*, Oct., 1930. Vol. LI, 476.

Miller, H. A. & Martinez, D. B.: Iodized oils in the Diagnosis of Pregnancy. *Radiology* 11, 191-93, Sept. 19, '28.

Rucker, M. P. & Whitehead, L. J.: Lipoidol in Early Diagnosis. *J. Mich. Med. Society*, 27; 559-67, Sept. 19, 1928.

Redecurt, M. & Jernakoff, C.: Is Manoiloff's Seroreaction for Pregnancy practical? *Zentralblatt fur Gynakologie* 54: 2831, Nov. 8, 1930.

Armstrong & Reinberg, S. A.: Die Klinische Bedeutung der Metrosolpingographie *Fortsch. a. d. Geb. d. Rontgenstrahlen*, 35:64, 1926.

Schneider, Paul & Eisler, Fritz: Gibt es einen Tubensphinkter Sphinkterbildungen, Am. Uterus, *Zentralblf. Gynak.* 31, 23, 1927.

Brouha, Adele: *Liege Medical* 24:629-664, May 10, 1931, Abs. *J. A. M. A.*, 97, Aug. 1, '31, 356.

Idem: Hysterosolpingographie *Fortschr. a. d. Geb. d. Rontgenstrahlen* 35:1007, 1926.

Idem: Die Rontgendiagnose der Erlerlschwan-Schapt-Zentralblf-Gynak, 49, 289, 1925.

Aschheim, S.: *A. J. Ob. & Gyn.*, 1930, X1X, 335.

Fluhmann, C. F.: *J. A. M. A.*, 1929, XCIII, 672, 674.

Friedman, M. A.: *A. J. Physiol.*, 1929, XC, 617.

Idem, A.: *A. J. Physiol.*, 1929, LXXXIX, 438.

Hammond & Marshall: Reproduction in the Habbit. *Edinburgh & Larden; Oliver & Byrd*, 1925.

Aschheim, S. & Zondek, B.: *Klin. Wchnschr.*, 1928, VII, 831, 1404; 1403.

Ehrhardt, K.: *Muenchen, Med. Wchnschr.*, 1929, LXXVI, 82.

Erdheim & Stumme: *Berl. klin. Wchnschr.*, 1908, May.

Kraus, E. J.: *Klin. Wchnschr.*, 1929, VIII, 731.



Louria, H. W., & Rosenzweig, M.: *J. A. M. A.*, 1928, XC1, 1988.  
Otto, Carl: *Zentralblf Gynack.*, 1929, III, 3037.  
Westerman, M. C.: *Nederl Trjdschr & Geneesh.*, 1929, LXXIII, 5686  
Murphy, D. P.: Ovarian irradiation, its effect on subsequent children, *Surg., Gyn. & Ob.*, 1928, XLVII, 201-15.  
Idem: Ovarian irradiation and health of subsequent children, *Surg., Gyn. & Ob.*, 1929, XLVIII, 766-79.  
Goldstein, L., & Murphy, D. P.: Microcephalic idiocy following radium therapy for uterine carcinoma complicating pregnancy. *A. J. Ob. & Gyn.*, 1929.  
White, M. R., & Severance, A. O.: Comparison of Pregnancy Tests. *J. A. M. A.*, Oct, 31, 1931, 1275.  
Wilson, K. M., Corner, G. W.: The Results of the Rabbit Ovulation Test in the Diagnosis of Pregnancy. *A. J. Ob. & Gyn.*, Oct., 1931, 531.  
Ehrhardt, Karl: The Aschheim-Zondek Pregnancy Reaction. *Surg., Gyn. & Ob.*, Oct., 1931, p. 486.  
Stein, I. F., and Arens, Robt. A.: The Intrepretation of Early Fetel Roentgenograms. *Radiology*, Aug., 1924.  
Reinhart, H. L. & Scott, Ernest: Modification of Aschheim-Zondek Test. *J. A. M. A.*, May 9, 1931, p. 1565.  
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DEAFNESS AND BLINDNESS\*

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I have chosen to discuss some of the diseases and conditions met with in the care of the children at the Illinois Schools for the Deaf and Blind at Jacksonville. It has been my privilege and duty to serve as attending physician at these institutions for the past two and one-half years.

I have chosen to discuss these problems because there is a general lack of appreciation of their importance. The extent of the worlds of deafness and blindness is known to only a few. We consult the census statistics regarding deafness and find that there are listed 45,000 deaf mutes. This figure only includes those who were congenitally deaf or acquired deafness before the age of 8, as those acquiring defects in hearing after that age retain their ability to talk. It has been estimated that 10 per cent of school children suffer from some defect in hearing. It has been estimated also that there are 3,000,000 school children in the U. S. who have subnormal hearing and that there are 10,000,000 persons with some defect of hearing.

The same may be said of blindness though the figures are not so large. There is, however,

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\*Report of Epidemics of Influenza and Pneumonia at Illinois Schools for the Deaf and Blind.

a large percentage of our school children who suffer from defective vision.

By way of introduction and so that you may have a brief review of some of the causes of blindness and deafness I have prepared a few lantern slides showing the reasons why these children are being taught where they are.

CAUSES OF BLINDNESS

Optic nerve atrophy.....	47	Phthisis bulbi.....	3
Cataracts complicata congen.....	34	Discoloration of lenses.....	3
Keratitis congenital.....	26	Anophthalmus.....	2
Ophthalmia neonatorum.....	24	Iridochoroiditis.....	2
Choroiditis and retinitis.....	15	Iritis.....	2
Injury.....	14	Retinitis pigmentosa.....	2
Myopia.....	10	Keratitis interstitial.....	2
Glaucoma.....	10	Keratoconus.....	2
Buphthalmus.....	8	Iridocyclitis.....	2
Undermined.....	7	Retinitis plastica.....	1
Albinism.....	7	Leucoma adherens.....	1
Ophthalmia sympathetica.....	6	Conjunctivitus diphthericus.....	1
Microphthalmia.....	5	Trachoma.....	1
Coloboma choroideal iris.....	4		

You will note that optic nerve atrophy leads the list of causes of blindness. And that congenital cataracts follow as a close second. The third group of congenital keratitis requires some explanation. These are not necessarily all of syphilitic origin; at the present time there are to the best of my knowledge 17 children at the Illinois School for the Blind as a result of syphilis. The fourth figure that of ophthalmia neonatorum which we know is of gonorrheal origin, is the most deplorable of all. These could all be prevented by the proper use of prophylactics in the eyes of new-born babies. The other groups need no comment.

The next slides show the causes of deafness. I have included the figures of Shambaugh and the Committee of the National Research Council for comparison. You will note variations in percentage in several diseases. However, the diseases causing the large preentages are comparable.

CAUSES OF ACQUIRED DEAFNESS

Reported 1930		Illinois School	
Shambaugh et al.		for the Deaf, 1932	
19.0%	385	Meningitis.....	55 15.62%
8.54	172	Measels.....	21 6.96
6.90	139	Scarlet fever.....	21 6.96
6.90	139	Influenza.....	28 7.95
5.11	103	Pneumonia.....	9 2.55
4.31	87	Suppurative otitis media.....	11 3.12
3.51	81	Whooping Cough.....	10 2.84
3.47	70	Fall.....	0 0.0
2.93	59	Infantile paralysis.....	9 2.55
2.55	51	Fever.....	15 4.27
2.33	47	Sup. otitis media and mastoidi is.....	14 3.81
2.18	44	Mixed infection.....	0 0.0

1.73	35	Diphtheria.....	5	1.42
1.59	32	Typhoid fever.....	2	0.56
1.49	30	Skull fracture.....	0	0.0
1.34	27	Probable syphilis.....	2	0.56
1.33	26	Brain fever.....	(4)	
1.09	22	Mumps.....	3	0.85
.196	4	Accidents.....	17	4.82
.882	18	Spasms.....	1	0.28
.294	6	Probable otosclerosis.....	0	0.0
.147	3	Chicken pox.....	0	0.0
.147	3	Fright.....	1	0.28
.147	3	Colitis.....	0	0.0
.098	2	Rickets.....	0	0.0
.049	1	Sleeping sickness.....	0	0.0
.049	1	Cholera infantum.....	0	0.0
.049	1	Stroke lightning.....	0	0.0
.049	1	Quinine.....	0	0.0
.049	1	Burns.....	0	0.0
.049	1	Tuberculosis.....	0	0.0
22.10	420	Unknown.....	108	30.58
		Peritonitis.....	1	0.28
		Convulsions.....	3	0.85
		Poisoned.....	1	0.28
		Brain abscess.....	1	0.28
		Birth injury.....	1	0.28
		Not deaf.....	1	0.28
		Stomach trouble.....	3	0.85

2014 Total.....352

Some of these deserve brief explanatory remarks. You will note that meningitis heads the list. Shambaugh reports a somewhat higher percentage than was found in our group. This is explained perhaps by the larger number studied in his group. Also by the fact that our percentage are compiled from the cause given on the application of the pupil without any attempt at interpretation. However, the percentages are comparable and represent the greatest number in both groups. It was impossible to determine how many of these were associated with suppurative otitis media and mastoiditis. Only a very small percentage, however, show any evidences of previous middle air disease or mastoid involvement. (Perforated tympanic membrane or draining ears or mastoidectomy scars.) It is fair to assume that probably 90 to 95 per cent. are due to epidemic cerebro-spinal meningitis caused by the meningococcus.

No attempt has been made in this paper to discuss the question of partial or total deafness. The results of audiometric studies are illuminating but time does not permit any discussion here.

The second largest cause of deafness in our series you will note in influenza. This differs from the report of Shambaugh. This is explained perhaps by the fact that more children are in attendance at the school now who had influenza during the large epidemics of 1918,

1919, 1920 and 1921 than were present when the previous study was made. Another point which may explain part of this difference is the popularity of the diagnosis of influenza since those epidemics.

Measles and scarlet fever leave a large number deaf. The study of deafness acquired as a result of these diseases is of great interest. Of all the diseases of childhood these two menace hearing most of all. Here, the relationship of suppurative otitis media, panotitis, and mastoiditis is greater. Many, in fact most of these children, show evidences of previous middle ear infection or mastoid disease. (Perforated drum with chronic otitis media and mastoidectomy scar.) The deafness in these, as well as all others due to infection of the middle and inner ear, is explained by most authorities as the result of a toxic neuritis of the auditory nerve.

Of all the other causes I will only discuss syphilis, and that only to point out the relative unimportance of that disease in the causes of deafness. However, this should be qualified by the statement that here, as elsewhere, a history of luetic infection of the parents is very difficult to obtain. The result of spinal fluid examinations would probably increase this percentage slightly. It would not, however, give it the importance attributed by many.

Before leaving the consideration of deafness and causes of deafness, I wish to call attention to the work of E. Glen Wever, Ph. D. et al. in the Psychological Laboratory at Princeton University, on the conduction of impulses through the 8th nerve. This work promises to bring to light many facts which may be of great help in the study of deafness.

Influenza.....	42	Blow on head.....	1
Influenza with pneumonia...	11	Compound dislocation of finger.....	1
Pneumonia.....	1	Sprained foot.....	1
Acute Tonsillitis.....	7	Ulcerated tooth.....	1
Acute colds.....	157	Cough.....	1
Otitis media.....	7	Injury to L. hand.....	1
Scabies.....	30	Paratoid inflammation.....	2
Observation.....	35	Fractured foot.....	1
Observation-tetany.....	1	Tongue laceration.....	1
Whooping cough.....	1	Poison ivy.....	1
Mumps.....	1	Malaria.....	1
Rheumatic fever.....	1	Sprained knee.....	1
Constipation.....	25	Acute tonsillitis, Follicular tonsillitis.....	31
Fractured leg.....	1	Acute pharyngitis.....	14
Rheumatism.....	3	Appendicitis.....	3
Pharyngitis.....	7	Dysmenorrhea.....	2
Sprained knee and elbow.....	2	Pink eye.....	3
Lymphangitis.....	1	Indigestion.....	2
Boils.....	2		
Sprained ankle.....	2		



Injured shoulder.....	1	Dermatitis.....	1
Ringworm of body.....	2	Fractures: R. Tibia and fibula,	
Hysteria.....	1	Radius and Ulna, L. Pelvis	
Diphtheria antitoxin.....	1	and 2nd lumbar vertebra..	1
Nausea.....	1	Acute tonsillitis.....	3
Injury to upper lip.....	1	Dislocation and fracture R.	
Vincent's sore throat.....	1	elbow.....	1
Blister on foot.....	1		

The last slide gives a partial list of the diseases treated in the Hospital at the School for the Deaf. You will note that tonsillitis, pharyngitis and acute colds head the list and make up the large percentage of the work. The majority of these children are not more than mildly sick. In fact, I venture to say that the great majority of them would not be put to bed nor under the care of a physician, if they were at home.

This brings me to a discussion of influenza and pneumonia. Benjamin Rush described "The Influenza" in 1789 in part as follows:

"The symptoms which ushered in the disease were generally a hoarseness, a sore throat, a sense of weariness, chills and a fever. After the disease was formed, it affected more or less the following parts of the body. Many complained of acute pains in the head. These pains were frequently fixed between the eye-balls, and, in three cases which came under my notice, they were terminated by abscesses in the frontal sinus, which discharged themselves through the nose. The pain in one of these cases, before the rupture of the abscess, was so exquisite that my patient informed me that he felt as if he should lose his reason. Many complained of a great itching in the eye-lids. In some, the eye-lids were swelled. In others, a copious effusion of water took place from the eyes; and in a few, there was a true ophthalmia. Many complained of great pains in one ear, and some of pains in both ears. In some these pains terminated in abscesses, which discharged for some days a bloody or purulent matter. In others, there was a swelling behind each ear, without a suppuration—sneezing was a universal symptom. In some, it occurred not less than fifty times a day. The matter discharged from the nose was so acrid as to inflame the nostrils and the upper lip, in such a manner as to bring on swellings, sores and scabs in many people. In some, the nose discharged drops, and in a few, streams of blood, to the amount in one case, of twenty ounces. In many cases it was so much obstructed, as to render breathing through it difficult. In some, there was a total defect of taste. In others, there was a bad taste in the mouth, which frequently continued through the whole course of the disease. In some, there was a want of appetite. In others, it was perfectly natural. Some complained of a soreness in their mouths, as if they had been inflamed by holding pepper in them. Some had swelled jaws, and many complained of the tooth-ache. I saw only one case in which the disease produced a coma.

"Many were affected with pains in the breast and sides. A difficulty of breathing attended in some, and a cough was universal. Sometimes this cough alternated with a pain in the head. Sometimes it preceded this pain, and sometimes it followed it. It was at all times distressing. In some instances it resembled the chin-cough. One person expired in a fit of coughing, and many persons spat blood in consequence of its violence. I saw several patients in whom the disease affected the trachea chiefly, producing great difficulty of breathing, and, in one case, a suppression of the voice, and I heard of another in which the disease, by falling on the trachea, produced a cynanche trachealis. In most of the cases which terminated fatally, the patients died of pneumonia notha.

The stomach was sometimes affected by nausea and vomiting; but this was far from being a universal symptom."

Dr. Rush's description of the disease interested me and the quotation is only a part of the account. The irregularities of the initial symptoms still prevail. The great majority of the children who had the disease entered the hospital complaining of being "not well." They were not able to say just where they were "least well." They entered the hospital early in the disease. The usual admission temperature was not above 100°F. Those who ran a typical course of influenza were afebrile by the third or fourth day. In the epidemic of January of 1931 there were 200 at the School for the Deaf and 65 at the School for the Blind. The disease was very mild and there were only 6 who had anything that might be termed pneumonia. These were all at the School for the Deaf. This year, 1932, January, the epidemic assumed a more severe nature. While we had fewer patients they were all greatly prostrated. At the School for the Deaf we had 53 cases of influenza; of these 11 developed pneumonia. The criteria on which the diagnosis of pneumonia was based were: elevation of temperature after the fourth day of the disease, leucocytosis. (This is a difficult finding to interpret because of the leucopenia which is associated with influenza) and positive chest findings, which did not as a rule become definite until about the seventh or eighth day of the disease. All but one of our cases terminated by crises. One had a pseudo crisis on the ninth day of the disease, and became very cyanotic. He was given oxygen for 16 hours, the cyanosis cleared up, his respirations became less

labored and his temperature returned to 104°F. He continued with the disease for two days, had a slow crisis over a period of 36 hours and recovered. One death occurred, this was in a poorly-developed poorly-nourished boy who had a very severe infection which apparently overwhelmed him from the beginning. He died on the fifth day of the disease. (A consultant described it as similar to the type of infection seen in the severe epidemics of 1918 and 1919.)

There were no cases of pneumonia at the School for the Blind.

This epidemic of influenza at the School for the Deaf with its high incidence of pneumonia is of interest. Why should there be such a high percentage of pneumonia? The patients were cared for in wards but as perfect isolation was maintained as was possible and all with pneumonia were screened. An explanation has been suggested, which seems reasonable. The deaf who do not talk are peculiarly susceptible to pneumonia—this is apparently true though I have searched the literature for any references. It is reasonable to assume, however, that the lack of the increased expansion and aeration of the lungs in talking would give opportunity for bacterial multiplication and resulting disease.

In conclusion let me state:

1. That of all the diseases of childhood measles and scarlet fever leave more children deaf.
2. That the fourth largest cause of blindness, ophthalmia neonatorum, is entirely preventable.
3. That deaf children who do not talk are peculiarly susceptible to pneumonia.
4. That I would make a plea that all of us who care for children respect and treat accordingly those diseases of childhood which result in defective hearing and vision.

#### DISCUSSION

Dr. George E. Baxter, Chicago: Dr. Drennan should be congratulated upon bringing a study like this before us. In my experience it is the first time I ever heard of a study of the medical work done in one of these state institutions, and it certainly is very illuminating. It is quite different in many respects from that which we contact in private practice and in private hospital practice.

There are several rather important phases of this subject of influenza. We have not yet accomplished

anything in a medical way to prevent epidemics of influenza. Not only have we not been able to prevent them, but we are not able to do anything specifically in curing them. This fact is the greatest challenge that the medical profession has today.

I say "influenza" in its very broad sense. We speak of colds, grippe colds, and all of these so-called upper respiratory infections that occur in children as grippe infections, influenzal infections, and so on, these are the conditions we are concerned with in general practice among children. We have a great deal to do with children who are affected with so-called upper respiratory tract infections and all of the complications and sequelae that come from them.

Personally, I had not the idea that measles was as productive of general deafness in children as Dr. Drennan has told us. I am quite certain that that varies a great deal in different epidemics. In the present epidemic that we are having in Chicago, I have seen more ears affected by an acute suppurative process than I have in any other epidemic of measles. This may happen to be just my personal experience, although other men with whom I have talked have had a similar experience. Our epidemics of measles or scarlet-fever naturally vary in different years, just as Dr. Drennan has said that the epidemics of influenza have varied in the last two years—last year very mild, this year quite severe and followed by pneumonias.

One might ask why did he not get pneumonias last year if the explanation which he gave is a correct explanation—that is, I understood him to say that there were not so many pneumonias last year as were present this year.

The thing that we observe is that these epidemics, not only of contagious diseases, but of acute upper respiratory tract diseases, vary tremendously with different years. We see one year, for example, a great many cases in which there will be ears involved in children. They will have suppurative otitis media. An other year we will have many of them that will have glandular infections following these upper respiratory grippal infections. Another year we will have tracheitis. It was very interesting to hear his quotation from Benjamin Rush when he said that some of these cases would lose their voices and some of them would have a tracheitis. We have had, for example, various epidemics with us where this aphonia laryngitis with stenosis of the larynx has been an extremely serious phase of the upper respiratory tract infection. They may have been complicated with a *Streptococcus*—perhaps they were—but these children developed a tremendous stenosis, making it difficult to differentiate them from a diphtheria. With some of them it is almost impossible to differentiate. That occurs, I think, more frequently in the younger children or the infants than it does in the older children.

Therefore, it seems to me in this whole subject that, in a medical way, we have not advanced very far beyond the descriptions which Dr. Rush gave so many years ago. We have not gone much farther in our clinical observations, not very much farther in our



prevention, and not very much farther in our treatment, with this exception; that I believe the important thing in the care of any infant or child that has an influenza or pneumonia is to approach that treatment from the standpoint of the management of the child that is sick and not from the standpoint of the treatment of the disease. This method of care is based upon the fact that we have no specific remedy which will cure an influenza and no specific remedy which will cure a pneumonia. We can, as physicians, do a very great deal to protect these babies and children from being overtreated, from being overdressed. Probably the one treatment that does more good than anything else is to provide physical rest for the infant or child that is sick. The idea of doing so many things for him decidedly interferes with the rest of the individual. Our medical men who treat pneumonias tell us that they now have learned to examine them, find out that they have a pneumonia, and then let them rest, omit the many unnecessary and disturbing things. We have to learn the same thing with our infants and children.

The next important thing is to give them plenty of water. I think that probably I will go down through my life talking about water, but water is the most important and specific remedy that we now have in treating babies and children. It is one which is denied to them all too frequently, for the simple reason that we wait for the infant or the child to ask for it.

Those two things are all that I would like to mention as far as the care is concerned. It is really a matter of care and management of the infant or child that is sick. When it comes to complications with an otitis media or a suppurative glandular infection, or what not, you have to apply some specific means or some specific mechanical treatment. Remember that the *care of the sick child* is the all-important thing. (Applause.)

Dr. George L. Drennan, Jacksonville: I will state in conclusion that the printing for the slides was done at the school for the deaf in the printing department.

I am very grateful to Dr. Baxter and Dr. Koehler for their discussions.

I think I can answer Dr. Baxter's question in regard to the influenza of 1931 by simply saying that it was about as mild as could be. If it had not been such a large epidemic I think that we would have called it nothing but cold. I agree with Dr. Baxter heartily on the treatment of children—treat the child and not the disease.

I believe the hardest thing for all of us to understand is that children do not stand dehydration, they cannot stand it; whereas an adult can go for thirty-six or forty-eight hours, perhaps, dehydrated, a child is just about 100 per cent. worse at the end of a twenty-four hour period without fluid. If children cannot take fluids by mouth, then give them some other way.

I appreciate Dr. Koehler's discussion in regard to the epidemiology of influenza. I did not make any attempt in the paper to discuss epidemiology. I realized that twenty minutes would have been gone long before I got started, but I agree with him that the isolation of those patients from carriers and from other

children with the disease will prevent many complications.

## SKULL FRACTURE IN CHILDREN WITH SPECIAL REFERENCE TO DEPRESSED FRACTURE AND CEREBRAL LACERATION

With Case Report

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It is the consensus of opinion among surgeons that children withstand head injury better than adults. Natural resiliency of the skull is responsible for freedom from severe crushing injuries. In very young children under the age of two years, the prognosis is not good since the venous sinuses situated inside the skull are liable to be lacerated. Should these cases not terminate fatally, spastic paralysis is to be expected.

Skull fracture may be conveniently divided into the following:

(a) Vault Fractures. This type is commonly seen in children. They are linear and have little tendency to extend into the base.

(b) Basalar Fractures are uncommon, and when seen, usually are the result of such severe trauma as to cause instant death; but, when they occur in the anterior fossa, as the result of injury to the forehead the prognosis is much more favorable.

(c) Depressed Fractures. We are chiefly concerned here with this type of fracture. They are due to direct violence and usually involve the vault of the cranium and may be closed, open, or penetrating and often comminuted.

It is possible for the outer table to be broken and depressed without injury to the inner. In children the inner table may be broken and the fragments separated, as a result of simple depression without fracture of the outer table. Usually both tables are involved, and when the force acts from without, the inner shows the greater damage. The theoretical rationale for this is: the debris caused by injury to the outer table adds to the bulk of the penetrating body, and its wedge-like action still further increases the injury to the inner table.

Symptoms depend on the extent of injury inflicted on the brain and skull and are local and general. Locally when an external wound is present, blood or cerebrospinal fluid may be

seen escaping or brain tissue protruding. The depression may be seen or felt and comminution ascertained. A pond or saucer fracture results when the bone shelves evenly in all directions. When the depressed portion lies beneath the rest of the bone it is called a gutter fracture.

General symptoms depend upon whether the injury is a closed depressed or an open depressed fracture.

In the former the patient shows symptoms of concussion and compression, whereas in the open depressed type the immediate effects are less severe. The explanation for this is, that the blow has expanded itself in fracturing the cranium and hence does little harm to the brain substance.

When once the dura has been penetrated, inflammation is liable to spread to the meninges and a diffuse or localized suppurative meningitis will ensue. If there is not a free external opening allowing a ready exit to the discharge, retention of inflammatory products may lead to their diffusion and the symptoms of compression will soon become evident. Skull fracture in children may be accompanied by any one, or combinations of the following:—

1. Shock.
2. Concussion.
3. Irritation.
4. Compression.
5. Edema.
6. Laceration.

*Shock.* This is usually manifested by: loss of consciousness, rapid shallow respiration, rapid feeble pulse, low blood pressure, and cold clammy skin. The duration varies with the extent of injury. If the cerebral insult has been trivial, there is a rapid return to normalcy.

*Cerebral Concussion.* This is a suspension of cerebral function as a result of head injury and the injury to cerebral substance varies according to the severity of the cause from punctiform ecchymosis to actual disintegration. Duret attributes the phenomena to stimulation of the restiform bodies in the medulla by sudden displacement of cerebrospinal fluid owing to a temporary driving inward of the skull by injury. The symptoms are variable: unconsciousness—partial or complete—is usually present. The pupils are equal and often contracted, rapid respiration, fluttering pulse, and relaxed sphincters are the rule. The duration is variable and terminates fatally or the patient re-

acts and may show phenomena of inflammation, compression or irritation. Usually restoration gradually becomes complete, reaction being fully established by the occurrence of vomiting due to cerebral hyperemia following the anemia.

*Cerebral Irritation.* A clinical condition characterized by great irritability of mind and body. It sometimes follows concussion and is usually due to a superficial laceration of the frontal region. The symptoms appear in two or three days after injury and include contracted pupils; weak, slow pulse; intense irritability. Usually at the end of a week a marked improvement is noted. Permanent sequelae such as chronic meningitis or mental aberration may result.

*Compression of Brain* is due to abnormal or excessive intracranial pressure which disturbs cerebral function and is characterized by: coma, stertorous respiration, pulse-slow at first—later rapid. Pupils vary according to the extent and location of the compression. Motor paralysis occurs late. Early, there may be a hemiplegia if the cerebral lesion is on one side. A localized compression of the motor area will lead to convulsions in the corresponding group of muscles.

*Cerebral Edema.* Soon after the accident considerable exudation follows causing the ecchymotic brain substance to swell and become edematous. This may subside, but in the more severe cases a spreading edema may result owing to pressure of the swollen tissues on the superficial veins in the pia mater. The circulation being thus hindered, increased exudation follows leading to general cerebral pressure and death. The excess of cerebrospinal fluid usually induced by the process hastens a fatal outcome.

*Cerebral Laceration.* The most constant sign which accompanies laceration is pyrexia and, should the motor area be involved muscular twitching will be present. It is impossible for the brain to be lacerated without resultant shock and concussion, hence, the symptoms of cerebral laceration become manifested after the signs of shock have passed. Pyrexia accompanied by signs of concussion postulates laceration since concussion per se is not associated with a temperature rise.

There are relatively few cases on record with an extensive crushing injury to the skull associated with marked depression and laceration of brain tissue, which have not terminated fa-



tally. The following case is that of a child who sustained a severe crushing injury to the head, with depression, laceration and virtual amputation of part of the cerebral surface by sharp, bony fragments:—

Case 1. J. D., aged four and one-half years, entered the hospital as an emergency case, with the history of having been struck in the head by an automobile.

*Physical examination* at the time revealed a child in deep coma, with a rapid, almost imperceptible, pulse and cold clammy skin. Inspection of the head revealed a compound, comminuted depressed fracture in the left frontal region, from which brain tissue was protruding, and considerable blood escaping. A single lateral film of the skull showed multiple depressed fractures of the left frontal bone. The child was more dead than alive, and immediate action was decided upon. The patient was taken to surgery and very little time was wasted in securing asepsis.

*Operation.* A semilunar skin flap about 3 inches in diameter was turned back together with the scalp muscles. A continuous mattress suture was placed along the margin of the skin flap to control hemorrhage before the incision was made. This exposed an area of 3 by 3 inches which showed both tables of the skull to be literally crushed and pressing inward. The multiple fracture fragments were gently removed with a dull bladed osteotome and bone forceps, together with an appreciable amount of lacerated dura and brain tissue which was found lying free at the site of fracture. When decompressed, the brain herniated outward, and brisk oozing from the cerebral surface was controlled by interrupted sutures in the torn dura. The wound was aseptized and skin closed with a whip stitch without drainage. The operation required seven minutes and meanwhile subcutaneous saline was administered.

*Progress of Case.* The patient returned from surgery with improved color and a rapid but much stronger pulse. Improvement had been noted in these respects immediately the depressed bone was removed. She remained in coma for three weeks. At first, deep with stertorous respiration, elevated temperature and rapid pulse. Then gradually, day by day, she became a little better, somewhat closer to consciousness. She would take nourishment and seemingly eat reflexly when food was given her, thus maintaining good nutrition. When consciousness became reestablished, a physical examination was done and revealed the following:— The left eyeball deviated laterally; there was no choking of the discs; a pulsating bulging of the left frontal region was present at the site of decompression. The right arm was in clonic contraction and the right leg slightly less so. A lower seventh nerve paralysis was noted on the right side. Slight spasticity of the right lower extremity was present. The deep reflexes were increased and were livelier on the left than the right side. No Babinski, Kernig or Brudzinski, could be elicited.

*Mentality.* The mental progress was very interesting to observe; when consciousness was first regained the

child neither talked (motor aphasia), nor seemed to comprehend questions or commands (sensory). This child was right handed, and an extension of the injury to the third frontal convolution, or area of Broca accounted for this manifestation. The fact that it was transitory seemed to indicate a pressure edema rather than actual tissue destruction. Paraphrasia constituted a prominent part of her speech as the signs of absolute motor aphasia began to recede. Constantly she would use the wrong word in sentences, very gradually this form of aphasia disappeared. Apraxia was very pronounced early in convalescence and has probably been the slowest pathologic finding to disappear. Voluntary movements of the right extremities, especially the upper, resulted in purposeless movements; partly accounted for by the marked spasticity present and the inevitable past-pointing associated with tonic muscular contraction. A very gradual improvement in the above mentioned aphasias, also in locomotion has been noted over a period of five months, and although it is impossible to prognosticate the outcome at this time, the outlook is at least hopeful and time alone will determine the end result.

Only one spinal puncture was done on this child and revealed clear fluid under slightly increased pressure. Her intracranial pressure was reduced by employing hypertonic saline and magnesium sulphate per rectum.

*Neurological Considerations.* Experimental evidence shows that the left frontal lobe may be removed (with the exception of the pre-rolandic and Broca's areas) without any after effect. The remote changes noted are due to the effects of pressure or edema upon distant parts of the brain. The pre-rolandic area of each frontal lobe is concerned with the cortical representation of motor power on the opposite side of the body. All of the motor centers are sharply limited posteriorly by the rolandic vein. The leg center lies alongside the falx, the arm center adjoins it and the face center continues still further laterally. Hemiplegia of spastic type with increased reflexes results from involvement of the pre-rolandic area. The order in which the motor centers are involved is important in localizing the lesion i.e. if leg center is first affected the lesion will be on the mesial side of the motor area. If the face is first affected the lesion will be primarily in the frontal, temporal or parietal lobe. In the above case the face center first showed signs of involvement.

*Aphasia.* A loss of or defect of speech is associated with injury to the left hemisphere in right handed individuals. A transient motor aphasia in this patient was noted. Some dis-

turbance of the subcortex of the left parietal lobe, whether by edema or otherwise, was manifested in this case by paraphrasia. Apraxia showed some involvement of the post-rolandic area of the left parietal lobe. Because of the prolonged unconsciousness of this patient it was feared that the center for consciousness might be involved. Experimentation has shown that the right cerebral hemisphere can be removed (peripheral to the corpus striatum) with no disturbance in consciousness; removal of left frontal, left occipital, and left temporal has no effect on consciousness. But, if the left anterior cerebral artery is injured, by any chance, the patient can never regain consciousness.

The center for consciousness, therefore, must be in the left cerebral hemisphere near the mesial aspect of the left hemisphere near the corpus callosum. Fortunately the injury did not involve this area.

*Conclusion.* 1. Children withstand head injury better than adults; in fracture, the linear variety is the rule.

2. Rapid, immediate decompression with adequate supportive treatment is the procedure of choice in depressed fractures.

3. Sufficient decrease in cerebrospinal fluid tension is obtained by dehydration methods in preference to lumbar puncture.

4. Loss of brain substance in the so-called silent area is entirely compatible with an ultimate good mentality.

5. Jacksonian epilepsy is the outlook in cases of this nature.

#### BIBLIOGRAPHY

- Bastian, H. C. and Collier, J.: Aphasia and other speech defects, Albutt and Rolleston, 8; 385, 1911.
- Bramwell, B.: A series of lectures on Aphasia, Lancet, 1; 71; 351; 1671, 1724, 1906.
- Brodie, B. C.: Injuries of Brain. Med. Chir. Trans. 14; 325, 1828.
- Dandy, W. E.: Removal of Rt. Cerebral Hemisphere for certain tumors with hemiplegia. Jour. A. M. A. 90; 823, 1928.
- Rose and Carless: Manual Surg. 1927, PP: 820-21.
- Dandy, W. F.: Dean, Lewis, Practice of Surg. Vol. XII.
- Moutier, F.: L'Aphasie de Broca. Thèse Paris, 1908.
- Wakeley, Cecil P. G.: Fractures of the skull in children, The Practitioner, 127: 75-83.
- Moorhead, J. J. and Weller, W.: Fracture of the Skull in children. Ann. Surg. Phila. 74: 72, 1921.
- Rand, Carl W. and Nielsen, Johannes M.: Fractures of the Skull: Analysis of One Hundred and Seventy-One Proved Cases, Archives of Surgery, 11:453-457.
- Ireland, Jay: Fracture of the Skull in children, Arch. Surg; 24:23-39.

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## BRUCELLIASIS IN ANIMALS\*

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URBANA, ILL.

Brucelliasis is an infectious, contagious disease of goats, cattle and swine, caused by *Brucella* genus; *melitensis*, *abortus bovis* and *abortus suis*. Poll-evil and fistulous withers in horses associated with localized *Brucella* infection as well as spontaneous infection in poultry have also been encountered. The epidemiologic significance of brucelliasis in poultry and horses is not known. Since *Brucella* infections in man may be traceable to infected goats, cattle or swine, the aim of the livestock sanitarian blends with the objective of the physician and public health officer in the suppression of the disease in animals. The hazard of undulant fever in man is thus reduced. Pursuant to this objective, a State Undulant Fever Committee has been appointed by the Director of the State Board of Health to study different aspects of Brucelliasis in animals and man. For the first time in Illinois all aspects of the disease will be considered under one correlating head.

In keeping with the objective of this committee, it may be mentioned that a survey of goat herds in Illinois has shown that these animals are free of the disease and that repeated annual tests on such herds should suffice against the introduction and spread of the malady. On the other hand, many cattle and swine herds are infected. Headed by officials of the State Department of Agriculture, veterinarians and livestock owners are voluntarily engaged in the control of the disease in cattle and swine, while state regulations require official tests on animals entering the state.

During the past ten years, field studies on the control of brucelliasis of cattle in Illinois have extended to 746 privately owned herds involving 19,487 cattle. These herds are located in 85 counties. As the result of repeated tests and sanitary measures voluntarily adopted by owners under veterinary supervision, more than 60 herds have been accredited as free from brucelliasis by the Chief Veterinarian of the State Department of Agriculture. Other factors being equal, *Brucella*-free herds

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should merit consideration from physicians and Boards of Health in pure milk campaigns. In the suppression of the disease in different herds in the State, approximately 100 veterinarians have been accredited to apply the preliminary agglutination tests. Accredited veterinarians have also been of assistance to physicians in applying the test for undulant fever.

The results of control measures in different herds may be summarized as follows:

1. Bang's disease in cattle and Traun's disease in swine are associated with bovine and porcine species of *Brucella*, respectively. These two species apparently do not commonly invade the unnatural host, yet reports of different investigators suggest that both types have been recognized in man suffering from undulant fever.

2. There are no gross lesions which condemn carcasses of reacting animals. Disposal of same to butchers is therefore practiced. The key to eradication programs in animals is therefore based largely on the detection of infected animals by the agglutination test, followed by quarantine, isolation and proper disposal.

3. The suppression of brucellosis in cattle and swine in Illinois is dependent upon the desire of owners to have healthy, profitable herds. Compulsory testing is not the vogue at this stage, though some City Boards of Health require pasteurization or freedom from disease as established by test. Estimates indicate that brucellosis in cattle and swine cost Illinois stockmen between five and six million dollars annually. Control is generally motivated by economics. Loss of calves and pigs, reduced milk flow, and sterility are the chief items of economy to the stockman.

#### CLINICAL EXPERIENCES WITH TUBERCULIN

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Among the many problems challenging one in the field of diagnosis is that of the patient who, despite the appearance of average health, complains of a depression of mind, mental and physical inefficiency and a fatigue which is

marked even after a full night's rest. When one has made a physical examination with negative findings and the laboratory examinations have been equally unproductive of helpful information too many of us are prone to dismiss such patients with the bromide advice to "forget it" and mentally classify them as neurotics.

The writer was confronted with a group of nurses in the training school who complained of the above-mentioned symptoms and, in some instances, of inability to increase their weight despite a good appetite and hearty intake of food. Physical and laboratory examinations were of no positive service; some of this group showed a moderate degree of anemia, but no more than is found in large numbers of people with no symptoms.

It occurred to the writer that one universal and ancient infection—tuberculosis—might afford a reason for this syndrome. Chest plates were made and showed only the old hilus glands and calcified lymph-nodes which the roentgenologists now include in "normal chests." This group was then asked to make a record of their temperature at least four times daily for two or three days and all but two showed no variation from normal; the exceptions showed a peak to 99.5 in the afternoon.

Following this observation each girl was given subcutaneously ten minims of a 1:100 dilution of Koch's old tuberculin. In every case there was a definite response consisting of a local reaction varying from three to twelve c.m. in largest diameter, with heat, redness and induration; some had a chill; all had elevation of temperature up to 100 or 102, and malaise and aching which lasted from 24 to 48 hours.

One week after this test therapeutic use of tuberculin was started, the initial dose being 2 minims of old tuberculin, 1:1000 dilution. Each week this was increased by two or more minims according to the occurrence of a reaction, and all of these doses were given subcutaneously. When the dose reached ten minims, the next serial dilution, 1:100 and 1:10 respectively were used until the final dose was 5 minims of the 1:10 dilution. When this dose is reached there is usually no reaction except a moderate local much smaller, if present, than that obtained by the original test dose.

Because of our universal infection in childhood it occurred to the writer that perhaps he

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was being misled by these experiences and that all of us might give a similar response to tuberculin. Volunteers from the nursing group who had no symptoms and were apparently in the best of health and efficiency were sought to permit the use of the same testing as was used in the group just described. Six nurses responded and again there was no temperature prior to the test, and x-ray plates of the chest showed the same changes as had been observed in the first group. Interestingly, after the injection of the same amount of tuberculin, there was no reaction of any kind.

Twenty-five patients have been thus treated and uniformly there has been a complete change in the picture. Instead of finding it difficult to carry on the day's work, all of these patients have been able to meet all demands without undue fatigue and with increased efficiency and joy in their tasks.

The only deduction which seems tenable to the writer is that these individuals were allergic to tuberculo-protein and the method of treatment used was that of desensitization as is commonly practiced for other allergic substances. The literature on allergy abounds with reports of all kinds of hypersensitiveness to protein,—food, epidermal, pollen, etc.,—but little or no reference is made to this most common possibility.

The preparation and use of tuberculin is as follows: Koch's old tuberculin is obtained in 1 C.C. vials and one part of this with 9 parts of normal salt solution, to which phenol, 0.5 per cent is added as a preservative, makes the first decimal dilution, or a 1/10 strength. Again, one part of this dilution added to 9 parts of diluent makes a 1/100th solution; and one part of this dilution added to 9 parts of diluent makes the 1/1000 solution. This method can be carried out to whatever dilution one may desire. These are all prepared with strict regards for asepsis and the dilutions kept in a refrigerator, since they thus appear to keep potent for an indefinite time. If refrigeration is not available fresh dilutions of the 1:100 and higher should be made at least once monthly.

In using tuberculin therapeutically much judgment is demanded, since this agent is potent and capable of doing harm. The initial therapeutic dose may safely be one or two minims of the 1:1000 dilution injected sub-

cutaneously, and at weekly intervals (although four or five day intervals are used by some) the following doses are administered. If there has been no marked local reaction the dose may be increased by 25 to 50 per cent of the preceding one. Experience has taught that where there is a large local reaction and especially if there is much constitutional response (temperature, aching, malaise, etc.) the dose usually should not be increased. The writer has found that merely repeating the same dose after such response causes only a moderate reaction. It sometimes has been found advisable to repeat the same amount several times before increasing the dose.

The following case reports illustrate the writer's experiences with tuberculin.

Case 1. Miss E. D., aged 24 years, nurse, was first seen November 18, 1930, two weeks after having had the mumps, because of weakness, afternoon temperature (99-102) and enlargement and tenderness of the submaxillary glands. She was 67 inches tall and weighed 135 pounds. Physically there were no abnormalities found except the adenitis mentioned. She was not seen again until February 2, 1931, still being easily fatigued and conscious of the glandular tenderness. Blood count was: Hb, 80; reds, 4,910,000, leukocytes 17,400, with neutrophils 68% and lymphocytes 28%. X-ray of the chest revealed only ancient hilus thickening and calcified lymph-nodes. General physical examination was negative for abnormalities. A daily 4-hour temperature for three days showed the maximum to be 99. On February 9, ten minims of the 1:100 dilution of old tuberculin was given subcutaneously. In the following 24 hours the temperature rose to 103, with marked aching and malaise, and at the site of the injection a hard, red, hot reaction appeared 6x7 cm. in area. Therapeutic use of tuberculin was begun on February 21 with one minim of the 1:1000 dilution of old tuberculin. (O.T.)

February 28, OT, 1/1000, M 1.

March 10, OT, 1/1000, M 2. No reaction. Glands smaller.

March 17, OT, 1/1000, M 2. No reaction. Feels much stronger.

March 27, OT, 1/1000, M 4. No reaction.

April 3, OT, 1/1000, M 6. T. 100. Aching, on the 4th, with a temperature of 101.8 on the 5th. Menstruation on this date.

April 10, OT, 1/1000, M 6. No reaction.

April 20, OT, 1/1000, M 8. Slight reaction in glands, aching, no temperature. Feels very well.

April 28, OT, 1/1000, M 10. Local reaction. 7 cm. T 100.

May 7, OT, 1/1000, M 10. Temperature to 99. Small local.

May 13, OT, 1/100, M 2. Only slight local reaction.

May 26, OT, 1/100, M 3. Temperature to 99.3. aching and malaise.



June 4, OT, 1/100, M 4. Marked malaise 24 hrs. T. 99.2. Glands tender, very little enlarged.

June 11, OT, 1/100, M 6. Reaction about same.

June 18, OT, 1/100, M 7. Chill. Temp. to 101. Weight 138 lbs.

June 24, OT, 1/100, M 10. Little reaction.

July 2, OT, 1/10, M 2. Small local. T. 99.6. Menstruation.

July 9, OT, 1/10, M 5. Sharp reaction 48 hrs. Chill, nausea, T. 101.6. Glands tender.

July 16, OT, 1/10, M 3. Feels unusually well. Weight 140 lbs. Negligible reaction.

*Comment.* The fact that the tuberculin caused a definite focal reaction in the submaxillary glands which were first noticed coincident with an attack of mumps, leads one to surmise that the latter infection activated a latent tuberculous adenitis. Certainly a mixed infection is suggested by the leukocyte count greater than one usually observes in an unmixed tuberculous infection. Her response to tuberculin both locally, focally and constitutionally after the test dose, with occasional focal reactions during desensitization, and the final marked improvement in health support the belief that this agent has a definite field of use in medicine.

Case 2. Mrs. R. H. R., aged 38 years, stenographer, widow. This patient had been observed from time to time since November, 1923, for conditions which will be cited in her past history. She was seen in March, 1930, for an acute rhinitis, and not again until Sept. 19, 1931, when she complained of having been unduly tired all summer, despite plenty of sleep and a vacation. She reported also a loss in weight of about ten pounds in the past six months and was very blue and depressed. Her past history included measles, pertussis, occasional "colds," puberty established at 18. Had a miscarriage at four weeks, date not given; otherwise never pregnant. Had a right cystic ovary and the appendix removed in 1918. That Fall had a severe influenza. Between 1923 and September, 1930, she had had treatments with ovarian extract because of diminishing menstruation and on the basis of a lessened function relative to the ovariectomy in 1918.

Physical examination revealed no basis for the picture presented, and because of an increasing experience with the value to be derived in such conditions from the use of tuberculin a test dose of this agent, ten minims of a 1:100 dilution, was given after checking the temperatures. The reactions consisted of chill, aching, a temperature rise to 100.3 and a primary local reaction of 3x4 cm. surrounded by a secondary aureola of 7x9 cm., with marked edema. One week later there still remained marked induration at the site of injection. On September 26, 1931, her weight was 118 pounds (height 5 ft. 5 in.) and therapeutic tuberculin, dilution 1:1000 was begun with a dose of two minims. These doses were increased weekly by one minim and

her report on Dec. 5, 1931, was that she felt much stronger, tired only moderately and her weight was 123 pounds. On this date six minims were given, a fairly large local reaction without temperature rise resulted, and the next dose was not increased. By January 16, 1932, the dose had reached ten minims of the 1:1000 dilution and only a small local reaction, 3 cm. in size, resulted. She reported as feeling very well and efficient and free of the depression which had been so marked. Her progress was uneventful and on April 26 the final dose of five minims of the 1:10 dilution was given without reaction. She weighed 127 pounds and stated that she could not recall when she had felt so well and full of energy and endurance. A total of twenty-six doses was administered in this instance.

*Comment.* A patient with unexplainable fatigue and inability to gain weight, whose study failed to disclose demonstrable pathology, manifested a marked reaction to tuberculin. By gradually increasing doses she became "desensitized" and showed a notable gain in weight and efficiency and a loss of symptoms. That she was allergic to tuberculin cannot be questioned, and the logical conclusion is that her symptoms were manifestations of this allergic state.

Case 3. Miss E. M., aged 25 years, teacher. In July, 1931, this patient complained of underweight of long duration and a constant fatigue which had been present for nearly a year. Her past history included pertussis, measles and at a time not dated, of glandular swelling (adenitis). Puberty was established at 16, with an interval of about five weeks between periods; these, for the past five years had been painful but not sufficiently so as to incapacitate her. Her family history was irrelevant. Examination revealed an alert, attractive girl of 62 inches in height weighing 93 pounds. The chest revealed no abnormalities, the heart was normal. There was no ptosis to account for the persistent underweight, nor was any visceral change discoverable. X-ray of the chest showed only calcified glands and hilus shadows accepted as normal. Tonsils, teeth and thyroid were apparently normal. On August 6, 1931, after a three days' observation of the temperature which showed no rise above normal, a test dose of old tuberculin, ten minims of the 1:100 dilution was given. The reaction within 24 hours was almost violent; at the site of the injection a hot, red, indurated area 7x9 cm. was observed, accompanied by a rise in temperature to 101.2 and severe aching and malaise. Her vacation being due, treatment was deferred until her return and was as follows:

September 12, 1931, OT, 1/1000, M 1.

September 19, OT, 1/1000, M 4. Local reaction 3x5 cm.

September 26, OT, 1/1000, M 6. Feels stronger.

October 3, OT, 1/1000, M 10. No reaction.

October 10, OT, 1/100, M 2. Hard at work. Feels no undue fatigue.

October 17, OT, 1/100, M 4. Small reaction.

October 24, OT, 1/100, M 6. Unusually heavy week. Local 6x8 cm. No temperature. Little fatigue.

October 31, OT, 1/100, M 6. Heavy week. Feels "bully."

November 7, OT, 1/100, M 8. Weight 98. Feels unusually vigorous. No reaction.

November 14, OT, 1/100, M 10. Reaction 4x6 cm. No general.

November 21, OT, 1/100, M 10. Local reaction 5x7 cm. Chill. Temp. 101. Aching for two days. Feels fine now.

November 27, OT, 1/100, M 5. Reaction smaller, lasting only 24 hours. Feels very fine though working hard.

December 5, OT, 1/100, M 5. Local reaction 10 cm. Temp. 99.4, but no aching.

December 12, OT, 1/100, M 5. Local as before. Tired from a very hard week. No temperature.

December 19, OT, 1/100, M 3. Local reaction 4x4 cm. Feels fine.

December 26, OT, 1/100, M 4. Reaction as before.

January 2, 1932, OT, 1/100, M 4. No reaction. Heavy week.

January 9, OT, 1/100, M 6. Only slight local. Feels very well.

January 16, OT, 1/100, M 8. Local reaction 4x6 cm. for 48 hours.

January 23, OT, 1/100, M 9. Very small local reaction.

January 30, OT, 1/100, M 10. Small local reaction.

February 6, OT, 1/100, M 12. No reaction. Weight 98 pounds.

February 13, OT, 1/10, M 2. No reaction.

On June 21, 1932, her weight was 97 lbs. A very strenuous winter's work was carried efficiently and without undue fatigue.

*Comment.* The history of a probable early tuberculous adenitis, together with x-ray evidence of a quiescent childhood pulmonary invasion leads to the reasonable deduction that there was a long-lasting tuberculoprotein hypersensitiveness affecting in some unknown manner this patient's metabolism and causing the underweight and undue fatigue. The violent tuberculin reaction which gradually disappeared on increasing dosage together with restoration of endurance and efficiency, despite a strenuous program during the period of treatment makes the hypothesis of this being entirely an allergic phenomenon very tenable.

Case 4. Miss Z. McG., aged 33 years, nurse in training. Height 5 ft. 7 in. For some months had been unduly fatigued and unable to bring her weight up to normal for her height and age. Weighed 123 lbs. Past history was irrelevant, except for a mild attack of influenza several weeks prior to this study. Blood count showed only a moderate degree of anemia. The x-ray of the chest showed only those changes accepted as within normal and physical examination revealed no cause for

her condition. A tuberculin test, ten minims of the 1:100 dilution, on March 3, 1931, gave a local reaction of 5x6 cm. in area, and a temperature rise to 101, with aching and malaise lasting two days. Treatment with tuberculin was as follows:

March 10, 1931, OT, 1/1000, M 1.

March 17, OT, 1/1000, M 2.

March 27, OT, 1/1000, M 4. No reaction.

April 4, OT, 1/1000, M 6. Small local reaction. Feels much better.

April 10, OT, 1/1000, M 6.

April 18, OT, 1/1000, M 7. Reaction small. Steady improvement.

April 25, OT, 1/1000, M 10. Reaction small. Steady improvement.

May 2, OT, 1/100, M 2. Reaction small. Steady improvement.

May 9, OT, 1/100, M 4. Reaction small. Steady improvement.

May 16, OT, 1/100, M 6. Feels very efficient. Weight 130 lbs.

May 25, OT, 1/100, M 8. Only small local reaction.

June 1, OT, 1/100, M 10. Only small local reaction.

June 8, OT, 1/10, M 3. No reaction.

June 15, OT, 1/10, M 5. No reaction. Weight 135 lbs. Feels better than for several years.

This nurse, on June 21, 1932, reports that the past year she has maintained a fine level of health and efficiency, even though while in another hospital she had an attack of pertussis. Her weight at present is 135 pounds.

*Comment.* It is possible that the influenza preceding the writer's contact with this patient, may have incited a reactivation of tuberculosis, the evidences being too slight to be found by physical examination or the x-rays. However, the end result justified the use of tuberculin.

Case 5. Miss G. H., aged 36 years, accountant. The history covers over four years in that the patient complained of fatigue, susceptibility to colds and cough at the time of her first visit in March, 1928. Her past history included measles, scarlet fever, otitis media and mastoiditis. Tonsils were clipped at the age of 12 and her appendix was removed at 13; and she had had influenza several years prior to her visit.

In the family history the important notation was that an older sister had died from tuberculosis in January of this year. Father and mother are living and averagely well. The patient was 66½ inches tall and weighed 106 pounds, having lost about five pounds in the last year. The relevant findings were ragged, submerged tonsils without adenopathy; slight dullness over the upper lobe of the right lung with increased vocal resonance but no moisture. The lungs were otherwise mobile and resonant. Temperature was 99 (P.M.) The heart was small and vertical in type, consonant with a long ptotic thorax. Employment of a Seidlitz powder disclosed the greater curvature of the stomach to lie five fingers-breadth below the umbilicus. X-ray of the chest revealed no active process. With increased



diet and a properly fitted corset she gained in strength and general efficiency, her weight reaching 118 pounds by November, 1928. She was seen once in 1929 and again in June, 1930, when she complained of lassitude and a loss in weight to 111 pounds. Again examination of the chest revealed no changes. In December, 1930, her weight was 114 lbs. and her condition was essentially unchanged. Another chest plate revealed no changes from that made in 1928. A polyvalent respiratory vaccine was used and there was considerable reaction following each dose, consisting of temperature varying between 99.5 and 101. With some improvement in strength and a gain in weight to 116 pounds. Without making a tuberculin test small doses of this agent were used beginning with minims four of the 1:10,000 dilution. Weekly doses were administered and gradually increased. In February, 1931, the doses were from the 1:1000 dilution and her weight had gone to 121 pounds, with a gratifying increase in strength and comfort. There was little reaction from its use, chiefly local. Throughout March and April there was continuing progress, the doses now being in the 1:100 dilution without other than local reactions. Her last dose on June 20, 1931, was five minims of the 1:10 dilution, from which there was no reaction. She weighed 131 pounds and felt better than for years. At present, June, 1932, this condition of health and efficiency, though she has been under increasing responsibilities, has been maintained.

*Comment.* The close contact with an open and fatal case of tuberculosis offered large possibilities of reactivation in this patient, and though all efforts to discover such activity were futile, her marked reaction to foreign protein which seems commonly to be ill-borne by those with active tuberculosis, warrants such suspicions. Her fine response to therapeutic tuberculin supports the writer's belief that this agent is of great value in such conditions as were present here, whether due to tuberculous activity or simply an allergic state.

Case 6. Miss J. S., aged 28 years, was seen Feb. 2, 1932. A well-educated ambitious young writer; she had lost all interest in her work for the past eight months because of a physical and mental fatigue, marked even after a full night's rest. Her past history was meager; she had an upper respiratory infection about once annually. She had been recently treated for dysmenorrhea by a gynecologist who dilated and inserted a pessary. She sleeps poorly, awakening about two or three A.M., finally to fall asleep, arising whenever she awakes, but fatigued. The appetite is good, but her weight is 114 pounds and she has been unable to increase it. Bowels move regularly and freely. Examination of heart, lungs and abdomen revealed no evidence of abnormality. Blood count: Hb. 70%; reds, 4,100,000; leukocytes, 8000, of which there were neutrophils, 65%, lymphocytes, 34%. A chest plate was not made because of the expense. On Feb. 4, 1932, ten minims of the 1:100 dilution of old tuberculin was

given subcutaneously, followed by a chill, temperature to 100.3 with much aching and malaise and a local reaction of 6 cm. in area. Therapeutic treatment was as follows:

February 11, OT, 1/1000, M 2. No reaction.

February 20, OT, 1/1000, M 3. No reaction. Feels much better.

February 27, OT, 1/1000, M 5. Small reaction. Stronger, working.

March 5, OT, 1/1000, M 7. Local reaction 6 cm., chilly, with a temperature for one day to 101.4; since then has felt better than usual.

March 12, OT, 1/1000, M 6. No reaction.

March 19, OT, 1/1000, M 7. Local reaction of 5 cm.

March 26, OT, 1/1000, M 8. Small local reaction. Feels very well.

April 2, OT, 1/1000, M 11. Moderate local reaction; no general.

April 9, OT, 1/100, M 2. No reaction.

April 16, OT, 1/100, M 4. Moderate local reaction.

April 22, OT, 1/100, M 6. Local reaction 2.5 cm.

April 29, OT, 1/100, M 10. Insignificant local reaction. Feels "bully."

May 6, OT, 1/10, M 5. Local reaction 6 cm; temperate to 100 of 24 hours duration.

June 3, 1932. Feels able to meet any situation and has gained weight to 119 pounds.

*Comment.* This patient showed the most rapid and remarkable restoration to a buoyant state of health of any of the patients in this group. The gynecologist referred to above recently stated that this patient's mental and physical depression was such that she gave a rather grave prognosis to the family and was astonished at the end result obtained.

Case 7. Mrs. M. E. W., aged 62 years, practical nurse. This patient consulted the writer Sept. 28, 1931, because of an undue fatigue for the past three or four months, and because opacities were found in the vitreous of the left eye, such as might be accounted for by an old, latent tuberculosis.

Her past history included some infected teeth which had been removed, a mild chronic arthritis, occasional "colds," a mild influenza, arteriosclerosis without hypertension and resulting coronary sclerosis with myocardial changes of moderate degree. The blood pressure has varied between 130-150 systolic, over 80-90 diastolic. Her weight for the past year has averaged 140 pounds. Physical examination revealed no explanation for the fatigue and on October 1, 1931, after observing her temperature every two hours for two days, with no elevation present, ten minims of old tuberculin, 1:100 dilution was given. In the next 24 hours the temperature rose to 101.3, there was marked malaise, aching and a local reaction 7x12 cm. Because the reaction was prolonged for five days, treatment was started on October 12, with two minims of the 1:1000 dilution. She was very regular in her visits and the doses were progressively increased, her final dose being five minims of the 1:10 dilution on February 16, 1932. Her improvement in fatigue was first noticed after the

fifth dose given on Nov. 10, 1931. Her reactions were usually moderate and insignificant, consisting usually of a temperature rise to 99.2-99.6. However, on December 1, the dose had reached 8 minims of the 1:1000 and this was followed by a temperature to 100.8 and much aching and malaise with a large local reaction. When the doses rose to the 1:100 dilution the reactions were much less, being only local and small. On February 16 when the patient was dismissed there had been a complete restoration of efficiency which is still present in July, 1932.

*Comment.* While one may assume that the degenerative changes compatible with this patient's age might account for her marked fatigue, the rapid disappearance of this symptom and maintenance of improvement places this case in the group of allergic patients reacting sharply to the test and improving after desensitization.

Case 8. Miss E. H., aged 40 years, graduate nurse of 15 years professional activity. Her complaints at the time of her first consultation March 23, 1931, were fatigue, heart pain on exertion and acne rosacea. The fatigue had been so marked for several years that often she had been compelled to give up her work and rest. After nursing in Honolulu several years prior to 1931, she suffered much as at present and was sent back to the States on the basis of climatic factors. Her past history was meager. An influenza in 1926 was followed by cystitis, later "grippe," double quinsy and pleurisy. Her heart symptoms appeared after the quinsy. The tonsils were removed in 1927. The family history was not significant. Physical examination noted the acne rosacea on cheeks, nothing of significance in the lungs, heart slightly enlarged to the left with normal rhythm and normal distant tones. The abdomen was unrevealing. Her basal metabolic rate was minus 11.7%. ECG indicated myocardial fibrosis. Her weight was 148. Blood pressure varied between 116-122 systolic; over 80-90 diastolic. Because of the acne which militated against her professionally foreign protein lactigen was used for a number of doses, which caused definite improvement in the rosacea. However, the distressing fatigue continued and produced a mental depression which was marked. After checking the temperature for two days finding it to be persistently subnormal, the usual dose of ten minims of the 1:100 dilution was given, on May 13. A local reaction of about 8 cm. in area, with elevation of temperature to 100, and severe aching and malaise followed. On May 23, therapeutic use of tuberculin was begun with minims 2 of the 1:1000 dilution. Curiously, she felt better a week after the test dose and steadily gained in comfort and efficiency throughout the course of injections. No reactions were more than moderate, temperature elevation only once reaching 99.6. Her final dose given August 10, 1931, produced essentially no reaction. Because of the lack of work she was compelled to leave the city, but a report from her later evidenced the real improvement.

*Comment.* This nurse, whose undue fatigue often caused her to give up a case, gave no findings explaining the condition. Her temperature reaction was notable, since the rise was against a constant subnormal reading. The improvement gained by the use of tuberculin was surprising, even to the patient herself.

Case 9. H. T. R., aged 37 years, salesman. Was in apparently good health up to May 30, 1930, when, during a golf game, was seized with marked pain and swelling in the right wrist. A physician who saw him at that time made a diagnosis of acute arthritis and instituted treatment with intravenous injections of mercurochrome and later with salicylates. Later intramuscular injections of yatrín-casein were given. Five teeth were also extracted. When seen by the writer, Nov. 17, 1930, he stated that since May 30 he had lost thirty pounds in weight and had developed much pain and moderate swelling in both wrists and ankles and was having a daily afternoon rise of temperature to 101. His past history embraced pertussis, sore throats, a right maxillary sinusitis in 1929; appendectomy in 1914; right foot fracture in 1928, followed by a phlebitis. The family history was not significant. The essential physical findings were: Weight 126 lbs. Height 67 inches. Tonsils small, slightly injected, but not considered as needing removal when examined by a member of the Nose and Throat department. There was a debatable cervical adenopathy. The lungs revealed no changes on inspection, percussion and auscultation. The heart also revealed no abnormalities. The wrists and ankles showed moderate swelling, but with no redness or heat; tenderness was marked and movement induced pain. Progress notes on the hospital record under date of Nov. 17 are as follows: "This appears to be a case of multiple arthritis of infectious origin. The loss of 30 pounds in weight in six months with a daily rise of temperature to 100.5 suggest other possibilities."

Laboratory findings were: Wassermann, negative; Kahn negative. Blood count: Hb, 85%. Reds varied in three counts from 4,610,000 to 5,100,000. Whites 3 counts, 20,500; 18,000, 13,600. Neutrophils 68% and 75%; lymphocytes 28% and 18%; trans. 4%. Eosinophiles, 7%. Urine showed faint trace of albumin, and 2-3 hyaline casts. Cultures of blood, urine, feces, prostatic strippings and washings from the right antrum were negative. X-ray of the joints involved showed no definite arthritic changes but a curious rarefaction of the os magnum, cuneiform, pisiform, radius and tip of the ulnar styloid process. A chest plate on the 17th showed "haziness of the right apex, upper and middle lobes, infiltration of the right hilus, bronchial infiltration and coarse fibrous strands across the middle lobe from the hilus to the outer costal margin. The parenchyma is studded with calcifications at the terminal bronchial endings indicative of repeated pulmonary inflammatory pathology." Ray of the sinuses revealed only haziness of the right antrum suggesting thickening of the mucosa.

Inquiry about the onset of this May attack elicited the



tact that just preceding his arthritic onset he had had a "cold" with pain in the right chest between the sternum and the breast with much cough and moderate production. He cannot recall if he had temperature, but did have night sweats. His temperature ranged from 98 in the morning to 99.8 in the evening on the 17th and 18th. On the 18th, ten minims of old tuberculin, 1:100 dilution, was given about noon. At 8 P. M. on the 19th his temperature rose to 102.2 accompanied by a local reaction 5x8 cm. in area, from which streaks of lymphangitis led to the axilla. The axillary glands were enlarged and tender.

A diagnosis of tuberculous polyarthritis was made, though no such clinical entity seemed to have been established. Just at this time there was found in the *Journal, A. M. A.*, of Sept. 5, 1930, an extract from the *Muenchener Medicinische Wochenschrift* to the effect that Reitter and Lowenstein reported 9 cases of polyarthritis in which they had isolated from the blood demonstrable tubercle bacilli. Confirmation of the reasonableness of the diagnosis was strengthened by a second chest plate taken Dec. 26, 1930, which showed the presence of a small amount of fluid in the right base, presumably due to a tuberculous pleuritis. Tuberculin therapy was started with doses of the 1:100,000 dilution of old tuberculin. He was very sensitive to this agent and sharp reactions were obtained both in temperature, aching and increase of joint pains, which, however, subsided gradually to an increased degree of comfort.

The patient went to Arizona in March, 1931, taking his plates and a synopsis of his case. A letter from his physician there states: "The complement fixation test for tuberculosis gave a two plus positive reaction," and "I am unable to detect any sign of activity in his chest, and yet he is running a rather typical temperature. I have not yet brought myself to agree with your diagnosis, but I am very willing to be convinced." "Mr. R— has lost weight since coming here and I am quite concerned about him."

The patient returned to Chicago in June, 1931, and was seen casually. He stated that his tonsils had been removed, but that he still had arthritis. Seen again in June, 1932, it was apparent that there had been no real gain in his condition and presumably he is having no treatment of any kind.

*Comment.* It seems reasonable that the "cold" just preceding the arthritis reactivated an old tuberculosis and that tubercle bacilli were deposited in the soft tissues about the joints via the blood stream. The temperature rise daily, his high sensitivity to tuberculin, the discrepancy between the joint symptoms presented and those usually seen in the usual type of arthritis together with failure of salicylates to ameliorate them, and finally the demonstration of fluid in the right chest,—all these fit logically into the diagnosis of tuberculous polyarthritis.

*Summary.* A report on the use of tuberculin in a group of 25 cases, all of whom, with one exception (H. T. R.) complained of a distressing fatigue, for which no gross evidence was found.

Each of these gave a marked reaction to tuberculin manifested by a rise in temperature, aching, malaise and a local reaction varying in size from 3 to 12 cm.

These patients, all treated with gradually increasing doses of tuberculin, lost this fatigue, gained endurance and efficiency and usually an increase in weight where this had been below normal.

This experience gives rise to the question of these symptoms being an expression of a tuberculo-protein allergy, and suggests the wider use of this agent in this otherwise discouraged and discouraging type of patients.

Intelligence and caution are demanded in the use of tuberculin, and especially is a thoughtful individualization necessary.

#### THE EFFECT OF TYPHOID VACCINE ON THE ERYTHROCYTE COUNT IN DEMENTIA PARALYTICA

EMIL T. HOVERSON, M. D.

G. W. MORROW, M. D.

and

R. O. HAWTHORNE, M. D.

KANKAKEE, ILL.

A study of the erythrocyte counts of patients at the Kankakee State Hospital afflicted with dementia paralytica has revealed the fact that these individuals have a tendency towards a low erythrocyte count in those cases in which fever therapy did not constitute a part of the treatment. This low count appears to be independent of the amount of antiluetic treatment given.

A perusal of the literature on the use of typhoid vaccine in the treatment of general paralysis has disclosed no mention of any changes occurring in the erythrocyte counts during and after treatments and this prompted the present study.

The work was started in July, 1931, and has been continued up to the present time. During this period over 1,800 typhoid vaccine injections have been given to 64 male patients. In connection with these, 172 erythrocyte counts have been made as a basis for this report.

It was observed that the administration of

typhoid vaccine *improved the general health of* patients so treated.

**Method.** The injections of typhoid vaccine were given twice a week until 16-18 injections had been given. This constituted a series of typhoid injections. Regardless of previous treatment each patient received an initial dose of 50 million dead typhoid bacteria. Subsequent injections were increased dependent upon the response to previous injections. The dosage was never greater than 2.5 billion. When this maximum dosage had been reached a good response was obtained not by further increasing the dosage but by reducing it to the size of the initial dosage. In such cases subsequent dosages were again gradually increased.

This report includes only the consideration of those patients on whom erythrocyte counts were made just before and after typhoid vaccine courses.

A brief tabulation of the results is as follows: Group 1. Those patients who have reports complete on one series of typhoid injections.

Case 1.	Increase of erythrocytes.....	340,000
Case 2.	Increase of erythrocytes.....	520,000
Case 3.	Increase of erythrocytes.....	640,000
Case 4.	Decrease of erythrocytes.....	400,000
Case 5.	Increase of erythrocytes.....	700,000
Case 6.	Increase of erythrocytes.....	200,000
Case 7.	Decrease of erythrocytes.....	710,000
Case 8.	Increase of erythrocytes.....	250,000
Case 9.	Increase of erythrocytes.....	1,090,000
Case 10.	Increase of erythrocytes.....	600,000
Case 11.	Increase of erythrocytes.....	530,000

Group 2. Those patients who have reports complete for two series of typhoid injections.

Case 1.	First series —decrease of erythrocytes.....	748,000
	Second series—decrease of erythrocytes.....	500,000
Case 2.	First series —increase of erythrocytes.....	470,000
	Second series—increase of erythrocytes.....	90,000
Case 3.	First series —increase of erythrocytes.....	220,000
	Second series—increase of erythrocytes.....	180,000
Case 4.	First series —decrease of erythrocytes.....	1,000,000
	Second series—increase of erythrocytes.....	100,000
Case 5.	First series —decrease of erythrocytes.....	1,000,000
	Second series—decrease of erythrocytes.....	150,000
Case 6.	First series —decrease of erythrocytes.....	440,000
	Second series—increase of erythrocytes.....	320,000
Case 7.	First series —increase of erythrocytes.....	240,000
	Second series—decrease of erythrocytes.....	120,000
Case 8.	First series —increase of erythrocytes.....	810,000
	Second series—decrease of erythrocytes.....	200,000
Case 9.	First series —increase of erythrocytes.....	10,000
	Second series—increase of erythrocytes.....	180,000
Case 10.	First series —increase of erythrocytes.....	680,000
	Second series—decrease of erythrocytes.....	300,000
Case 11.	First series —increase of erythrocytes.....	1,000,000
	Second series—increase of erythrocytes.....	650,000
Case 12.	First series —increase of erythrocytes.....	420,000
	Second series—decrease of erythrocytes.....	100,000
Case 13.	First series —increase of erythrocytes.....	260,000
	Second series —decrease of erythrocytes.....	500,000

Case 14.	First series —increase of erythrocytes.....	500,000
	Second series—increase of erythrocytes.....	160,000
Case 15.	First series —increase of erythrocytes.....	1,220,000
	Second series—increase of erythrocytes.....	630,000
Case 16.	First series —decrease of erythrocytes.....	320,000
	Second series—decrease of erythrocytes.....	300,000

In group 1, nine patients show an average increase of 541,000, while the others, two patients, show an average decrease of 520,000 erythrocytes. Group 2 comprises the patients who received two courses of typhoid vaccine. This group contains sixteen patients. Of this number, six show an average increase of erythrocytes of 442,000 following each typhoid course; three had an average decrease of 503,000; seven of the sixteen patients show an increase of 404,000 following one series, an average decrease of 537,000 following the other series.

#### CONCLUSIONS

1. Parietic patients improve in general health after a series of typhoid vaccine treatments.
2. There is a group tendency toward an increase of the erythrocyte count during treatments with typhoid vaccine.
3. Any mental changes brought about by the use of typhoid vaccine has not been considered as part of this report.

Kankakee State Hospital.

#### HYPERTENSION: A RATIONAL CONCEPT

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EVANSTON, ILL.

The unorthodox behavior of hypertension has caused the literature to abound with the products of research study and clinical observations on this subject. That few of the conclusions are universally accepted and that many of the seemingly substantial concepts put forth have been subsequently disproven is further evidence of the existing confusion.

The constantly changing picture presented by most sufferers from hypertension defies orderly classification as to the results of treatment, and renders the conclusions formulated open to scepticism in the minds of those who have struggled with this problem. Results of control series are similarly difficult to evaluate because of the spontaneous variability of both the systolic and diastolic pressures, the tendency toward seasonal variations in some individuals and the existence of periods of remis-





a return to successful cardiac function.

It must be conceded that hypertension may become a disturbing factor in the circulation during the time that an effort to compensate is in progress and at such times emergent treatment is in order. Interference with the blood pressure during uncomplicated efforts to compensate may in a nephritic, embarrass his ability to throw off nitrogenous end-products or in arteriosclerotic individuals lead to an actual ischemia of vital organs of the body. Rational systems of treatment must be founded upon a recognition of the existence of these two opposing factors which are often operating simultaneously in the body.

The systolic blood pressure however high, does not indicate the desirability or necessity of effecting a reduction. The symptoms so frequently ascribed to hypertension are found just as frequently in hypertensives during periods of remission and especially during the low level periods in those, subject to an intermittent type of pressure.

The accompanying chart is that of a white woman 72 years of age who has been observed for over three years. The clinical diagnosis is arteriosclerotic heart disease superimposed upon an old rheumatic endocarditis, class 2a. Associated lesions are mitral disease, auricular fibrillation, hypertension and generalized arteriosclerosis. Blood pressure determinations were made on an average of every three weeks for the entire period and no drug other than digitalis was used. Marked subjective sensations of stupor, vertigo and headache accompanied by varying degrees of edema, dyspnea and cyanosis appeared during those periods when the systolic pressure fell below 160 mm. of mercury. These symptoms disappeared and a sense of well-being accompanied rises in the systolic pressure up to 190 mm. Only once during this interval (early in 1932 therefore not shown in this graph) did the above complaints accompany a rise in pressure up to 190 mm. and then were present to a less marked degree. This patient has learned to fear a fall in pressure and associates the above symptoms with that event.

#### SUMMARY

1. Hypertensive patients show marked spontaneous variations in both the systolic and diastolic pressures.

2. Evaluation of the effects of treatment is difficult because of the erratic behavior of the blood pressure in hypertension.

3. Increases in the systolic pressure are usually compensatory in nature and require no reduction in most instances.

4. Actual danger of tissue ischemia or vascular thrombosis may attend the arbitrary reduction of systolic pressure.

5. The blood pressure record of a patient observed for over three years with the accompanying subjective and objective symptoms is shown.

636 Church Street.

### PARATHYROIDISM AND PARATHYROIDECTOMY WITH CASE REPORTS\*

A. A. MERTZ, M. D.

DECATUR, ILLINOIS

The connection of parathyroidism with osteomalacic conditions has a most interesting history and recently much interest is being manifested. This paper will consist of reports of several cases of parathyroidism with parathyroidectomy, describing their history, blood chemistry and roentgenological studies, which reveal the very interesting picture of parathyroidism. Operation for the investigation of the parathyroids was done with ultimate results, shown by roentgenograms showing recalcification of the bones, with reports of clinical improvements.

The experimental demonstration of the metabolic phenomenon which follows the injection of the parathyroid hormone has resulted in the hitherto unknown clinical entity parathyroidism. The diagnosis of this condition now rests on a secure basis.

The establishment of parathyroidism as a clinical entity amenable to treatment by parathyroidectomy, constitutes a distinct advancement in the fields of both medicine and surgery, and is one of the most important recent contributions of experimentations to clinical medicine.

In this paper the word parathyroidism will be used to replace the word hyperparathyroidism, since we are going to deal with opposing

\*Read before Section on Medicine, Illinois State Medical Society, Springfield, May 18, 1932.



symptoms. These opposing symptoms are not simply due to lessened or increased functions of the affected gland, but various clinical states will have to be interpreted as dysfunctions, with mixtures of hyper and hypo elements in the same patient as the name parathyroidism implies.

Case 1. A woman 70 years of age whose history of parathyroidism dates back to March, 1923. Family history reports her mother and three sisters died of tuberculosis. Six children living and well. Personal history. She had the usual children's diseases. Pneumonia twice, the last attack at the age of 41 years. At the age of 48 years was operated on—appendectomy and hysterectomy, and a cholecystectomy at the age of 53 years. Menses began at the age of 13 years. Periods were regular, normal duration four to five days. No urinary disturbances and bowels always have been regular. Fractured left arm in 1925. Present illness began March, 1923, when she was admitted to Decatur and Macon County Hospital. She first noticed stiffness in the lower extremities, unable to walk, accompanied by excruciating pain in the legs, across lower pelvic region through to the back and severe backache. Six weeks of this suffering was followed by the same symptoms in the upper extremities. She could not bend her arms or fingers. Never in her life had she suffered from anything like this. She was discharged from the hospital with a diagnosis of neuritis. She continued to suffer more or less pain in her limbs, especially in the right upper arm, hand and fingers. This suffering was very intense at times requiring opiates. For the past four or five years she protected her right hand all she could in doing her work and avoided shaking hands, always presenting her left hand which was much less painful. She gradually became noticeably stooped. Her bowels became obstinately constipated. She complained of gastric and colon distress to the point that she was certain she had a malignancy. Pain resulted in a more or less constant state of nervous and physical exhaustion. Lost much sleep. Became discouraged, fearful of becoming a hopeless cripple. Muscles generally hypotonic.

Radiographs taken September, 1931. Lateral spine showed wedging of the 6th, 7th, and 8th dorsal vertebrae with loss of intervertebral spacing, intervertebral disk compression, herniation of nucleus pulposus; diminution of the height of the vertebrae. Dimineralization of the bodies of the vertebrae, ground glass appearance of the vertebrae bodies. Radiographs also showed some hypertrophic arthritis of her lower vertebrae; metastatic calcium deposit. Pelvic bones show marked demineralization. Radiograph of her hand showed osteitis fibrosa cystica spots in the proximal phalanges.

Blood calcium and phos., Sept. 1931—14.8	3.3
Oct. 1931—14.9	3.3

Pre-operative diagnosis parathyroidism. Operation, November 12, 1931. Thyroparathyroidectomy right. The right lower parathyroid gland was a true parathyroid adenoma. The left side was investigated and

found normal. The pathological report: Specimen consists of a very cellular adenomatous parathyroid tumor 1cm x 1cm x 1/2cm; microscopically it consists of areas of compact parathyroid tissue with a large diffuse area of alveolar cystic spaces in some of which secondary hemorrhage has occurred; thyroid is diffusely adenomatous. Post operative history: The immediate results were distinct relief from pain, gradual gain in muscle tone and strength. Increased appetite, relief from constipation and abdominal distress. A gain in weight of 15 pounds in a few months. Radiographs taken three and six months after operation showed definite recalcification with resulting restoration of function.

Case 2. Female, aged 64 years. No history of diabetes or hyperthyroidism, and up to 1923 enjoyed exceptional good health.

Present trouble began eight and one-half years ago following a severe attack of influenza and pneumonia. Following the pneumonia she suffered with severe arthritic pains in all her extremities. Pain very severe, muscular weakness, gastric disturbances, total disability. She was treated for articular rheumatism. She lost much weight. Never could gain.

In 1924 she entered the hospital for blood sugar studies and glycosuria and was discharged with a diagnosis of diabetes mellitus. She continued to suffer from her rheumatism and at various times would be a completely bed ridden invalid.

The phalangeal joints of her hands and wrists, elbow and shoulders were ankylosed; pronounced muscular hypertonia. Her chair had to be of a definite height so she could sit down and at the same time be able to stand up herself. She needed to remain in bed one or two days each week to overcome weakness and exhaustion.

Her tonsils were removed in 1926. From a slight fall she had a Colle's fracture in 1928. She was treated for diabetes from 1924 to February, 1931, receiving insulin. Quoting patient, "I had to take small doses as I easily would go into insulin shock."

Patient had a slightly palpable adenomatous goiter. She probably had a low degree of hyperthyroidism with her parathyroidism with no signs of activation, rather an apathetic thyroidism.

From her history she suffered from a toxicity which definitely decreased her tolerance for carbohydrates.

Authorities mention the association of hyperthyroidism and diabetes, and when you remove the toxicity of the goiter you definitely increase the tolerance for carbohydrates. She also was definitely suffering from parathyroidism. Interlocking disorders of other endocrine glands as it were an endocrine imbalance.

In this case the operation thyroparathyroidectomy was done.

Her tolerance for carbohydrates changed to the extent that soon after operation she was sugar free on a regular non-diabetic diet. Gained 15 pounds and was glad to discontinue insulin. It also brings up the question whether she was a true diabetic at all. Sugar tolerance tests on these cases would show a decreased tolerance for carbohydrates, not only caused by hyperthyroidism but by parathyroidism as well. Further glu-

cose tolerance tests will reveal the true picture.

Radiographic report February 2 and 3, 1932: There is evidence of decalcification and some cystic degeneration in the phalanges and metacarpals of the left hand. There is considerable anterior curvature of the thoracic vertebrae and a thinning out or decalcification producing very slight shadows of the vertebrae on the plates. The edges of the vertebrae are shown by very narrow white lines. There is little if any hypertrophic exostosis formation between the vertebrae. The intervertebral discs are compressed and look thinned out.

Laboratory report: high serum calcium and low serum phosphorus.

Preoperative diagnosis, parathyroidism.

Operation February 15, 1932. Thyroparathyroidectomy. Both lobes of thyroid are slightly enlarged and have the appearance of small adenomatous goiter. At the entrance of both lower inferior thyroid arteries parathyroid structures are seen. Left subtotal lobectomy and removal of left lower parathyroid body. Right subtotal thyroid lobectomy. The right lower parathyroid is a more compact body, ovoid. Removed and identified as a true parathyroid adenoma by biopsy. Post operative report: Sleeps uninterruptedly all night without pain since the operation. All movements are much better. Can sit on any chair in the house. Muscles regaining their tone and noticeably overcoming the atrophied state.

Radiographs show progressive recalcification of the bones. She can dress herself, get in and out of the car and attend her church which she was unable to do for eight years. Less forward bending of the back and shoulders. Limbs feel freer, looks younger.

Case 3. Female, 73 years old. Family history negative. Personal history: typhoid in youth. Mother of 8 children. Two children died of tuberculosis. One child only lived two weeks. Was over-weight most of her life. Present trouble seemed to have its beginning 20 years ago. Began suffering intensely in her lower limbs and back, especially while at work. Three years ago she became totally disabled. The last walking was done only by sliding the feet with crutches and canes. She noticed the muscles became progressively weak and pain so marked she became bed ridden two years ago. Marked bending of the spine. Could use her hands part of the time. The osteomalacic process seemed to affect the spinal column and the pelvis. Quoting the patient: "I had to be put on a fracture bed because I had too much pain for anyone to touch me or move me." Kyphosis of severe degree. Stooped over appearance, neck drawn in, shoulders coming forward, lower ribs approaching the iliac spine and a flattened pelvis. She slept much of the time in a sitting posture. She suffered from periodical itching of the skin and thought she had eczema which no doubt was due to the hypercalcemia as well as the cause of the diuresis from which she suffered. She was treated for diabetes. During these attacks of diuresis and skin affections she remembered distinctly as suffering much more severely from pain. Blood serum calcium determinations taken then would have been high and blood serum phosphorus low. Marked atony of her

muscles and nerves and a definite facial expression, "Psychic Quietude." Dry skin, senile appearance, deep lines and wrinkles.

Blood chemistry, April, 1931, before operation: Blood serum calcium 12.6. Blood serum phosphorus 3.8.

Radiograph report May 5, 1932, of spine and pelvis.

Lateral view of the thoracic vertebrae shows a marked bending forward of the upper vertebrae with compression of the anterior part of the bodies. There is considerable decalcification of the vertebrae with some lipping of the articular surfaces.

Radiograph of the pelvis shows the entire pelvic bone to be markedly decalcified so that there is very little contrast between the bones and the surrounding tissue. The upper portions of the femurs are also markedly decalcified.

Pre-operative diagnosis, parathyroidism. Operation May 7, 1932. Collar incision, short neck. Both thyroid lobes enlarged and have the appearance of adenomatous goiter. Right subtotal lobectomy taking the tumor of the parathyroid in continuity 1 cm x  $\frac{1}{2}$  cm x  $\frac{1}{2}$  cm. Left subtotal thyroidectomy and removal of a smaller parathyroid gland.

Pathological report. Specimen consists of a parathyroid adenoma. The cell structure and arrangement is distinctly atypical. The stain is unfortunate and does not bring out the eosinophilic characters of the tissue, so that it is impossible to tell the relation of the "chief" to the oxyphile cells, but my impression is that the chief cells make up the major part of the tumor. There are large numbers of colloid cysts far in excess of the normal number.

Blood chemistry, May 16, 1932: Calcium 9, phos. 2.5.

Post operative period. In the hospital 8 days. Received 20 units of parathormone daily. Much less pain. Was in wheel chair for a short period each day during the last three days in hospital. She was very homesick and left hospital May 16, 1932.

Case 4. 73 years old. Typhoid when a child, no other serious illness. Had 12 children, all living but one. Had left breast removed 28 years ago and at that time had a noticeable goiter. She suffered from palpitation of the heart at various times; was treated for heart disease. Present trouble began a year ago in right hand and right leg. Backache. This suffering was more severe at times with intervals of relief. Marked muscular weakness. Stooping, poor appetite, loss of weight, gastrointestinal distress, dry skin, facial appearance senile, deep lines, "Psychic Quietude."

Blood chemistry April 26, 1932, Cal. 14. Phos. 3.3.

Radiographic report April 26, 1932. Lateral radiograph of the thoracic vertebrae shows some lipping and hypertrophic exostosis in the region of the middle third of the thoracic vertebrae. Some compression and decalcification is to be noted.

Diagnosed parathyroidism. Operation, May 4, 1932.

There are some cystic areas of decalcification in the phalanges and also some areas of marked increase in calcification. Both conditions are to be noted more at the ends of the bones.

Pathological report. Thyroid adenoma with some fibrosis. Thyroid adenoma with edema and necrosis.



Parathyroid tissue is diffusely infiltrated with fat. There are no distinct departures from the normal except that the gland is unusually fatty, but this is a common finding in elderly people. (It should be understood that in parathyroidism there is often no outstanding pathology in the parathyroids.)

Post operative report. Pain much relieved. Increased muscle tonus. Skin moist, calcium normal. Convalescing.

There is a type of actual calcium disturbance which is probably a transitory osteomalacic type that should be treated with Viosterol, ultraviolet rays, calcium, and so on. These cases usually have no elevation of serum calcium. An exact limit between this and permanent parathyroidism cannot be drawn. If in doubt one should treat these patients one or two months and if no improvement takes place or recurrences take place after an amelioration parathyroidectomy should be considered.

As to the arthritic type, parathyroidectomy should only be considered after the acute stage of arthritis has passed for a long time but has led to more or less ankylosis. There also should be some suggestion of hypercalcemia, hypotonia of muscles and some decalcification. This should be termed a parathyroidism, arthritic type. No operating should be done for an active arthritis without such symptoms as mentioned. Standard Life Building.

### DISCUSSION

Dr. Paul Starr, Chicago: Mr. Chairman and Gentlemen: I would like to stress the fact that the discovery of hyperparathyroidism, first reported in this country by Eugene Dubois at Bellevue, opens up the field of calcium physiology which is extremely complex. We must be very careful in approaching the treatment of individual cases to analyze all the factors involved.

There are a great many forces which influence calcium metabolism. First there is deficient intake which has led to a perfectly definite picture of hunger or starvation osteomalacia.

Second, an excessive excretion produced, for instance, by fatty diarrhea as it occurs in sprue.

Third, the draining effect of repeated pregnancies. This brings up an interesting point, namely, that the old operative procedure recommended for the treatment of osteomalacia was ovariectomy; what ovariectomy might have to do with that is hard to see, and yet there is a very definite influence that that would have, since it would prevent further pregnancies and further drain on the maternal organism for calcium, having nothing whatever to do with the fundamental process.

Then, of course, there is fourthly, deficient vitamin D intake, and fifth, deficient phosphorus ingestion. There

is a disease in South Africa that is well recognized in cattle, producing bone disease that is due simply to the fact that the terrain on which the cattle feed has a deficient amount of phosphorus in the geological deposits and the grasses and grains of that area do not contain enough phosphorus, leading to a perfectly definite bone disease.

Then we have sixth, hyperparathyroidism, in which we have just begun to take an interest. This condition produces calcium deficiency by increasing calcium excretion.

I tried to collect the clinical data on Dr. Mertz's cases as he was talking. I think that the pathological reports are exceedingly interesting and important.

The first case has a tumor, 1 centimeter in diameter, that seems by report to be a parathyroid adenoma. The blood chemistry before operation was 14 blood calcium and 3.1 blood phosphorus. That does not fit the picture of hyperparathyroidism since the phosphorus should be considerably lower than that. I wish that he had been able to have post-operative blood chemistry values in that case, because the reversal of the blood picture would be much more definite in establishing the diagnosis.

Interesting in that case, and in others that he reports, is the relief of pain following a parathyroidectomy. Bone pain is a definite element of a clinical picture of hyperparathyroidism and is suddenly relieved by parathyroidectomy. On the other hand, we must remember the psychological effect of any operation in changing the entire outlook of the patient and not be confused thereby.

In the second case no blood chemistry figures were given, perhaps by an oversight. It was suggested that they should have a high calcium and a low phosphorus. The association of diabetes and hyperthyroidism in the second case is interesting.

In the third case the blood chemistry before operation was 12.6 which is the upper limit of normal for the blood calcium. I would admit that that is slightly increased. The blood phosphorus, however, was 3.8, which is probably normal. Interestingly enough, after operation the picture does not suggest a change in hyperparathyroidism since the blood calcium is 9, which is normal, and the blood phosphorus has gone down to  $2\frac{1}{2}$  instead of increasing as it would if the hyperparathyroidism were relieved.

In the fourth case the preoperative values are 14 for the blood calcium and 3.3 for the blood phosphorus. The blood phosphorus values are exceedingly important in the diagnosis of the disease. Since the most general group, Albright and Bauer, students of Aub, believe that the essential characteristics of the disease of the parathyroid function are its effect on phosphorus and that the calcium effect is entirely secondary; by the use of the parathyroid hormone preparation it can be shown that the first effect of parathyroid hormone is to promote excessive excretion of phosphorus, producing a lower blood phosphorus and the increase in blood calcium values following later as a secondary effect of the excessive phosphorus excretion.

An actual physiologic diagnosis of parathyroidism has not been made in any of Dr. Mertz's cases. These operations do not seem to have been indicated.

#### BIBLIOGRAPHY

Ballin, Max and Morse, Plinn E.: Parathyroidism, *Amer. Jour. of Surg.* Vol. xii, new series, No. 3 pp, 403-416. June 1931.

Ballin, Max and Morse, Plinn E.: Parathyroidectomy From the Transactions of the American Surgical Society, *Annals of Surgery*, October 1931.

Ballin, Max: Technique of Parathyroidectomy *Surg. Gynec. and Obst.* Vol. liv, No. 5, p. 806, May 1932.

Helstrom, John: (Stockholm) Hyperparathyroidism and Osteitis Fibrosa Cystica Generalisata. *Acta Chirurgica Scandinavica*, Vol. lxix, Fasc. 11-111, P. 237.

## SOCIETY PROCEEDINGS

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Regular Meeting, Wednesday, October 12, 1932*

#### SYMPOSIUM ON ANEMIA

Anemias in Women of Child Bearing Period.

Charles B. Wright, Minneapolis, Minnesota.

Anemias of Nutritional Disorders.

W. H. Holmes.

Anemia in Children.

H. G. Poncher.

Discussion.....	{	LeRoy Sloan
		Wilber Post
		R. H. Jaffe
		Julius Hess

*Regular Meeting, Wednesday, October 19, 1932*

#### LAY EDUCATIONAL PROGRAM

#### PROTECTING THE PUBLIC FROM MEDICAL FRAUDS

Fads, Quackery and Healing.

Morris Fishbein, Editor,  
American Medical Association.

Patent Medicines and Panaceas.

A. J. Cramp, Bureau of Investigation,  
American Medical Association.

Prosecution of the Quack.

Mr. Charles A. Bellows,  
Assistant States Attorney.

*Regular Meeting, Wednesday, October 26, 1932*

#### Fourth Annual William T. Belfield Lecture

Changing Concepts in the Dietary Treatment of Renal Disease

Solomon Strouse, President  
Chicago Society of Internal Medicine

Discussion to be opened by

Wilbur E. Post  
Herman L. Kretschmer

### WILLIAMSON COUNTY

The Williamson County Medical Society opened its fall and winter series of meetings September 20, 1932 at the Elks Club in Herrin, Illinois.

The speakers were Doctor Frank Gorham and Doctor Paul Titterington of St. Louis. Doctor Gorham discussed the diagnosis and medical treatment of Peptic

Ulcer of the stomach and duodenum. Doctor Titterington discussed the X-Ray diagnosis of Peptic Ulcer, and then discussed the technique of demonstrating certain bones of the face by X-Ray, showing a great many slides of fractures of different bones of the face.

There was an unusually good attendance and a very profitable meeting.

H. A. Felts, *Secretary*.

## Marriages

FRED WILSON GRAHAM, Morris, Ill., to Miss Clara Ellen Russell of Terre Haute, Ind., in Chicago, September 3.

EARL O. LATIMER, Chicago, to Miss Mildred Neal of Rockford, Ill., September 25.

FRED J. STUCKER to Miss Pauline Ford, both of Chicago, September 14.

## Personals

Dr. and Mrs. M. D. Empson, Harco, observed their golden wedding anniversary, October 2.

Dr. Thurman B. Rice, Indianapolis, addressed the Vermilion County Medical Society in Danville, October 4, on bacteriophage.

Dr. Elmer T. Swann was recently awarded the Order of the Purple Heart for meritorious military service in France.

Dr. Gustavus M. Blech has been awarded the diploma and decoration of the ancient Belgian Order of St. George, with the grade of commander.

Dr. James J. Donahue was appointed supervisor of medical and health service in the public schools of East St. Louis, effective September 14.

The Kane County Medical Society was addressed in Elgin, October 5, by Dr. Max Thorek, Chicago, on "Possibilities in the Reconstruction of the Human Form."

Dr. James J. Donahue has assumed his new position as supervisor of medical and health service in the public school system of East St. Louis.

Dr. William G. Turney, Shelbyville, addressed the Shelby County Medical Society, September 23, on diseases of the gallbladder.

Dr. Ellis Fischel, St. Louis, addressed the Alexander-Pulaski County Medical Society, Cairo, September 30, on treatment of cancer.

Dr. Paul R. Cannon gave the presidential address before the Chicago Pathological So-



ciety, October 10, on "New Trends in the Study of Infection and Resistance."

Dr. James H. Hutton, Chicago, addressed the Rock Island County Medical Society, October 11, on "Practical Points in Endocrine Diagnosis and Treatment."

Dr. James G. Carr, Chicago, addressed the McDonough County Medical Society in Macomb, October 11, on diagnosis of cardiac disease.

The Sangamon County Medical Society heard Dr. Harry L. Alexander, St. Louis, September 29, at Springfield, in a talk on arthritis.

Dr. Ernst Gellhorn, from the department of animal biology, University of Oregon, Eugene, has been appointed to a similar position at the University of Illinois College of Medicine.

Dr. Carl A. Hedblom, Chicago, addressed the Adams County Medical Society, Quincy, October 10, on "Diagnosis and Treatment of Pulmonary Abscess and Bronchiectasis."

Drs. Francis L. Lederer and Philip A. Halper, Chicago, addressed the DuPage County Medical Society at Wheaton, September 21, on "Otologic Problems in General Practice" and "Ophthalmologic Problems in General Practice," respectively.

Dr. Henry Close Hesseltine, instructor in obstetrics and gynecology, University of Chicago, won the \$100 annual prize of the Central Association of Obstetricians and Gynecologists for the most original work done by a member during the year. His paper dealt with gynecologic fungi infections in diabetic patients.

Dr. Thomas Parran, Jr., commissioner of health for the state of New York, delivered an illustrated lecture on "Syphilis as a Public Health Problem," October 31, at the City Club, under the auspices of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine.

Dr. G. Henry Mundt was elected President of the Association of New York Central Lines Surgeons at the annual meeting in Buffalo, October 14, 1932. The next meeting will be held in Chicago in June, 1933.

Dr. Harry Singer of the Department of Medicine, University of Illinois College of Medicine, talked over the Columbia Broadcasting System on October 7, subject—"Ulcer of the Stomach."

Dr. C. Raimer Smith, formerly Director of Public Health, Decatur, Ill., conducted the sectional meeting on health for the Teachers' Annual Institute of Macon County, held in Decatur, October 13, 14, 15, 1932.

Drs. Thomas P. Foley and J. R. Ballinger gave the program at the October 20 meeting of Livingston County Medical Society, on the subjects, "Pioneering in Financial Prophylaxis" and "Medical-Legal Medicine."

Professor Julius Bauer of the University of Vienna addressed the students of the University of Illinois College of Medicine on the subject of "Constitution in Medicine," on October 8.

Dr. Jesse R. Gerstley was the guest speaker in pediatrics at the Annual Meeting of the Medical Society of the State of Pennsylvania held in Pittsburgh on October 5, 1932.

Dr. Paul S. Carly of the Rockefeller Foundation gave a talk before the Medical History Club of the University of Illinois, October 5, on "Experiences in the Near East and in the American Tropics." Dr. Carly is a graduate of Illinois, 1919, was an Interne and Resident in Cook County Hospital. For the past ten years he has been with the Rockefeller Foundation.

## News Notes

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—A new roentgen-ray department occupying ten rooms has recently been installed at the John C. Proctor Hospital, Peoria.

—A bronze memorial tablet was unveiled in the Berwyn Hospital, September 4, commemorating Dr. Arthur MacNeal, whose death occurred, March 13. Dr. MacNeal founded the Berwyn Hospital and practiced in Berwyn for forty years.

Dr. C. Raimer Smith has resigned the position of Health Director of Decatur, Illinois, to enter the private practice of medicine. Resignation became effective October 1, 1932.

—Dr. Fred L. Adair, professor of obstetrics and gynecology, School of Medicine, Division of Biological Sciences, University of Chicago, has been appointed chairman of the department to succeed Dr. Joseph B. DeLee, whose appointment expired October 1. Dr. DeLee, who has been chairman since the founding of the department three years ago, has been appointed chief of the obstetric service in Lying-In Hospital. He will retain his professorship of obstetrics and gynecology. Dr. Adair came to the university in 1929 as professor of obstetrics and gynecology from the University of Minnesota School of Medicine.

—Announcement has been made by the Alexander County Medical Society that a free clinic will be operated by physicians of Cairo and Alexander County for children whose parents are unable to pay for medical services. Under the plan, physicians will give their services free and the Kiwanis and Rotary clubs and other civic organizations will cooperate in supporting the clinic and raising the money to defray the expense of operation. For many years the Rotary and Kiwanis clubs have supported health work among the underprivileged children of Cairo and the county. All cases will be checked to determine that parents are unable to pay and that their children would not otherwise receive help.

—The new La Rabida Jackson Park Sanatorium, where free treatment will be given to children with heart disease, was dedicated, October 18. The new sanatorium, according to newspaper accounts, is a replica of the La Rabida building of the 1893 World's Fair, which was a reproduction of the famous hotel at Palos, Spain, where Columbus planned his voyage leading to the discovery of America. Among the articles placed in the cornerstone by Mrs. Louis T. Orr, president of the sanatorium board, were a list of the donors, year books of the organization, and the first quarter dollar minted in 1932. Speakers included Drs. Robert A. Black, medical director of the sanatorium; Herman N. Bundesen, president of the Chicago Board of Health, and Morris Fishbein, editor of the Journal, A. M. A. The new building cost about \$300,000, and has accommoda-

tions for 175 children. Thirty were accepted for treatment, October 21.

—An institute for psychoanalysis was opened at 43 East Ohio Street, October 3, with Dr. Franz Alexander as director. Dr. Alexander was formerly associated with the Berlin Psychoanalytic Institute and was visiting professor of psychiatry at the University of Chicago. Dr. Karen Horney, also of the Berlin institute, will be associate director. The objectives of the institute will be to carry on research to study, teach and practice psychoanalysis. A limited number of patients will be accepted whose therapeutic problems coincide with the research aims of the institute. The Chicago institute will be the second of its type in the United States and the first to maintain a full time and staff with fixed salaries. The institute is partially endowed and is incorporated under the laws of Illinois as a nonprofit organization. Mr. Alfred K. Stern, a director of the Julius Rosenwald Fund, is president of the board; Sidney L. Schwarz, a trustee of Michael Reese Hospital, vice president; Dr. Ludvig Hektoen, director, John McCormick Institute for Infectious Diseases, treasurer, and Walter T. Fisher, an attorney, secretary.

—Five illustrated lectures on cancer are announced by the Institute of Medicine of Chicago and the Cancer Research Committee of the Chicago Woman's Club, to be delivered by Dr. Max Cutler, director of the tumor clinic, Michael Reese Hospital. The lectures, planned for physicians, internes, senior medical and dental students, and graduate nurses of Chicago and vicinity, will cover the fields of causation, prevention, early diagnosis and treatment. The material presented will include in chronological order the historical landmarks in the progress of the knowledge of cancer, a description of recently discovered contributing causes, and a review of the modern methods of treatment. Special attention will be directed to the newer developments in the technic of the roentgen-ray and radium, and the results of the modern treatment will be shown. The lectures will be as follows:

- November 4: Causes of Cancer and its Prevention.
- November 11: Early Diagnosis of Cancer.



November 25: Surgical Treatment of Cancer.

November 28: Radiation Treatment of Cancer.

December 2: Results of the Modern Treatment of Cancer.

—Dr. Paul S. Carly of the Rockefeller Foundation gave a talk before the Medical History Club of the University of Illinois, October 5, on "Experiences in the Near East and in the American Tropics." Dr. Carly is a graduate of Illinois, 1919, was an Interne and Resident in Cook County Hospital. For the past ten years he has been with the Rockefeller Foundation.

—Professor Julius Bauer of the University of Vienna, addressed the students of the University of Illinois College of Medicine on the subject of "Constitution in Medicine," on October 8.

—At its meeting of October 8, the Board of Directors of the American Society for the Control of Cancer took the following action:

"It was voted that the *Bulletin* of the Society be made its official organ and that the present relationship between the Society and the *American Journal of Cancer* be discontinued."

—The Cook County Graduate School of Medicine in affiliation with the Cook County Hospital was incorporated under the laws of Illinois, September 3, as a corporation, not for pecuniary profit. The object is to maintain a graduate medical school for the advancement of medical, surgical and scientific studies and to engage in research. The school will be located in a three-story fireproof building at 427 South Honore Street. It proposes to provide courses in general medicine, surgery and the specialties, to be of such duration and to include such subjects as will best serve to improve the knowledge and practice of regular graduates of recognized schools of medicine. No instruction will be given to persons who are not regularly licensed practitioners of medicine from recognized medical schools. The initial aim of the school is to organize and systematize immediately the great facilities offered by the material contained in Cook County Hospital, and by the institution of a teaching unit in the hospital to improve the care of the sick.

It is also desired that fellowships may be provided for the study of suitable problems. The faculty will include the staff of Cook County Hospital in all its branches. The administration of the school will be in the hands of a board of trustees, who became the incorporators by reason of the power invested in them by the staff of the hospital: Drs. Philip H. Kreuscher, chairman; Raymond W. McNealy, secretary; Aaron Arkin, Thomas C. Galloway, Richard H. Jaffe, William F. Moncrieff, Karl A. Meyer and Frederick Tice, the last two ex officio.

—At a recent meeting in Chicago, the directors of Alpha Omega Alpha Honorary Medical Scholarship Society adopted the following resolutions in recognition of the eminent services of the late Dr. William W. Root, Slaterville Springs, New York, the founder of the society and secretary-treasurer since its organization in 1902:

1. That all stationery and official documents of the society bear the words, "Founded by William W. Root, 1902.", and

2. That the annual lecture presented each year by a leading medical scientist, be known as the "William W. Root Alpha Omega Alpha Lecture."

Mrs. Root will continue as assistant secretary of the Society.

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## Deaths

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Frank Billings, Chicago; Northwestern University Medical School, 1881; interne in Cook County hospital; demonstrator of anatomy in his alma mater till 1885; after fifteen months of study abroad he demonstrated the new studies in bacteriology; professor of physical diagnosis in Northwestern University Medical School 1886-1891; professor of medicine till 1898; then associate professor of medicine and dean of senior students at Rush. Later, at the request of President Harper he became professor of medicine and dean of the faculty. His death at the age of 78 from a gastric hemorrhage occurred September 20.

President of Chicago Medical Society in 1900 and president of the American Medical Association in 1902, he was the only one to serve two years in that office. Treasurer of the association from 1904 to 1911 and trustee from 1918 to 1924. His presidential address on medical education led to the establishment

by the trustees of the Council on Medical Education and Hospitals. He also took an active part in the early work of the Council on Pharmacy and Chemistry.

As a medical organizer he was active in the development of the Chicago Pathological Society, the Chicago Society of Internal Medicine and the Institute of Medicine of Chicago. He was president of the Association of American Physicians in 1906, and, in 1907, of the National Association for the Study and Prevention of Tuberculosis.

Among other institutions established by wealthy patients of Dr. Billings may be mentioned the McCormick Institute for Infectious Diseases, the Durand Hospital, the Otho S. A. Sprague Institute, the University of Chicago School of Medicine with the associated Bobs Roberts Memorial Hospital for Children, the Max Epstein Dispensary, the Albert Billings Hospital, the Frank Billings Clinic, the Billings Library, and the Lasker and the Douglas Smith Foundations for research.

Dr. Billings was a leader in almost every activity concerned with the phenomenal advance of the science and art of medicine during the last fifty years.

John Whiteaker Ballance, Marion, Ill.; Rush Medical College, Chicago, 1896; aged 61; died, September 9, of pulmonary tuberculosis.

Charles John Paul Beirne, Alpha, Ill.; St. Louis College of Physicians and Surgeons, 1902; aged 64; died, September 6, of poison, self administered.

George S. Bolt, Herrick, Ill.; Missouri Medical College, St. Louis, 1883; aged 72; died, October 5, of angina pectoris.

James Howard Burns, Carrollton, Ill.; Eclectic Medical Institute, Cincinnati, 1892; a Fellow, A.M.A. past president of the Greene County Medical Society; served during the World War; aged 64; died September 4, of heart disease.

Thomas Oscar Freeman, Mattoon, Ill.; Baltimore Medical College, 1898; a Fellow, A.M.A. member of the House of Delegates of the American Medical Association, 1916-1917 and 1921-1932; fellow of the American College of Surgeons; formerly member of the state board of health; city health officer; for many years attending physician to the Odd Fellow's Home; one of the organizers and on the staff of the Methodist Memorial Hospital; aged 59; died, October 7, of cerebral hemorrhage.

William S. Gilbert, Wheaton, Ill.; Hahnemann Medical College and Hospital, Chicago, 1893; aged 63; died, August 26, in the Community Hospital, Geneva, of postoperative shock and pyloric obstruction.

Elmer Newton Glascock, Mill Shoals, Ill.; St. Louis University School of Medicine, 1905; aged 52; was found dead in bed, September 26, of heart disease.

William P. Goodsmith, Wilmette, Ill.; Rush Medical College, Chicago, 1883; member of the Illinois State Medical Society; on the staff of the Martha Washington Hospital, Chicago; aged 73; died, October 3, of myocarditis and paralysis agitans.

Charles N. Harrison, Fulton, Ill.; National Medical University, Chicago, 1903; aged 68; died, August 15, of myocarditis.

Austin Montgomery Lindley, Urbana, Ill.; Cincinnati College of Medicine and Surgery, 1880; member of the Illinois State Medical Society; for many years president of the board of health of Urbana; aged 76; died, September 13, of carcinoma of the intestine.

Franklin Albert Martin, Pana, Ill.; Missouri Medical College, St. Louis, 1898; a Fellow, A.M.A. served during the World War; on the staff of the Huber Memorial Hospital; aged 58; died, September 30, of angina pectoris.

William J. McCuaig, Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1886; aged 72; died August 28, in Los Angeles, of chronic valvular heart disease.

James M. Mitchell, Pontiac, Ill.; Rush Medical College, Chicago, 1900; a Fellow, A.M.A. aged 62; died, August 25, of carcinoma of the throat and mouth.

Heliodor Schiller, Chicago; German University of Prague Faculty of Medicine, 1896; a Fellow, A.M.A., fellow of the American College of Surgeons; associate surgeon to the Michael Reese Hospital; aged 61; died, October 20, in St. Therese's Hospital, Waukegan, Ill., of injuries received in an automobile accident.

Edwin A. Streich, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; a Fellow, A.M.A. on the staff of St. Bernard's Hospital; aged 56; died, August 25, of chronic valvular heart disease.

John L. Sweeney, Chicago; Baltimore University School of Medicine, 1898; a Fellow, A.M.A. aged 65; died, August 26, in the Evangelical Deaconess Hospital, of diabetes mellitus.

Anthony Jacob Tananewicz, Chicago; Chicago College of Medicine and Surgery, 1914; aged 46; was found dead, September 21, of chronic nephritis and cardiac insufficiency.

Theodore Ticken, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; a Fellow, A.M.A. Ingals clinical professor of medicine, Rush Medical College; attending physician to the Cook County Hospital, 1906-1924; attending physician to the Presbyterian Hospital; consulting physician to the Norwegian-American, Washington Boulevard, Durand, Garfield Park and Columbus hospitals; governor of the Institute of Medicine of Chicago; aged 66; died, October 15, of coronary thrombosis.

James Elmer Woelfle, Cairo, Ill.; St. Louis College of Physicians and Surgeons, 1897; member of the Illinois State Medical Society; served during the World War; for many years member of the board of education; aged 60; died, September 9, of angina pectoris.

Ralph Eugene Worrell, Elmwood, Ill.; Northwestern University School of Medicine, Chicago, 1909; aged 52; was killed, August 28, in an automobile accident.



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# ILLINOIS MEDICAL JOURNAL

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## Editorials

### TOO MUCH STATUTORY REGULATION, TOO MUCH INTERFERENCE WITH MEDICINE AND BUSINESS IS THE PRESENT DAY CURSE.

Economic ills that threaten medicine and even civilization itself can find at least a partial cure if legislators will repeal the many unnecessary laws and free themselves of the bad habit of over-lawmaking since we already have too many laws that are neither enforced nor respected.

That the "least government is the best government" is a fundamental requisite for the survival of civilization that should be impressed upon national and state legislative bodies in this year of unprecedented international crisis.

Congress is now in session in Washington, D.C., and within a month the state legislature will convene at Springfield. Though the intent of and the reason for these bodies, as specifically stated in the Constitution of the United States, is to perform the constructive duty of making and enacting laws, it now becomes of vital moment that the citizens who have elected these law makers shall most emphatically call to their attention both individually and communally that—

*We do not need any more laws. We have already too many laws and too little respect for them. That already "America is forced by law to do, and prohibited by law from doing, more things than had been prohibited or required in autocratic Europe before the world war."*

In what was an early twentieth century epidemic of evading personal and individual responsibility by endeavoring to create moral and economic standards by legislation and make the statute books of the country the scapegoats of the United States, the tax-payers were deluged with prohibitive laws that blanketed every citizen with legal

shackles both as to individual rights and the exercise of the predominant early American quality of horse sense.

And for that deluge the tax-payer has paid, and paid and keeps on paying. Nobody minds these excess statutes not even the political henchmen who get fat salaries for their indifferent inefficiency in enforcing what well has been called:

"New and interfering laws that multiply in the United States as rapidly as the staggering tax levies that are required to pay for the administration of meddling statutes that nobody wants and nobody needs except members of the bureaucracy rapidly destroying personal freedom and making this country the worst of autocracies, with a situation paralleling pre-revolution France."

All this should be brought to the attention of the legislators both local and at Washington. We need fewer laws. We need those few enforced. And it would seem that the only way in which to secure the remedy for over-centralization and over-taxation and over-legislation would be to use the minimum amount of the "hair of the dog to cure the bite" by the power of repeal; by the enactment of only such legislation as will wipe off the statute books forever the mass of entangling, throttling, unnecessary, un-American legislation that has done nothing for this country but burden it with a class of bureaucrats, tax-exempt, politically controlled, who have not even the traditional "birthright of kings" as a plea for their parasitical subsistence upon the wage-earner and the tax-payer.

For it has been well-proven that the cost of upkeep of paternalistic regime and its theft of personal intimate privileges beggars United States citizens as one person out of every seven is on the public payroll, income tax exempt even, and public servants and pensioners have increased at a rate unknown to previous history.

Nor does the bureaucratic faction have the sense to realize, nor the power of perspective to read the handwriting on the wall indicated by the collapse of national business, much of which has been literally taxed out of existence. Blame international affairs as men may for the finishing touches to the current economic debacle there is no doubt of it but that over-

taxation, over-legislation, bureaucratic control and governmental invasion of individual rights was the tinder that first started the fires of business destruction.

For from standard democracy to democracy standardized has been the country's drift. To-day's American is hedged about by more prohibitions than were Europeans under pre-war monarchies and with less chance of recovery.

Bureaucratic government with over-centralization at Washington is practically substituted for "Government for the people, of the people, and by the people." In the United States of America, the republic is being ousted by degrees for a progressive bureaucracy. This burden of decadent Europe, from which the founding patriots fled, is daily being shifted, through the leverage of paternalistic legislation at a high tax rate, upon a trusting and hitherto free people. Statute books of the land betray and defy the Constitution of the United States by a mass of expensive, interfering, useless laws that make personal acts of daily life a question for public legislation. Since through fatuous law-making the crime against liberty and the constitution has been committed, it is from the law-makers that restitution must come. The United States citizen who can find for the country the trail away from this menacing, multitudinous bureaucracy will be the Abraham Lincoln of the Twentieth Century. It must be confessed that so far signs are few of another Lincoln, another Hamilton, another Jefferson, or what perhaps may be needed most of all another George Washington.

To what extent paternalistic control has extended into the farthest walks of daily life—personal, commercial and professional—may be estimated from citations of statistics and comments made by men, and commissions, widely diverse in every other economic viewpoint. Setting aside the overwhelming taxes that are unsurpassed in national history, and of which one of the results is economic collapse and "breadlines" and "doles" and of which the greater portion of the levied taxes is expended in paying salaries to government employes for enforcing handicapping legislation, it is interesting and educative to note that:

1. Buckle wrote, "For five hundred years



all advance in legislation has been made by repealing laws."

2. A certain National Budget Committee set forth the facts that

(a) "During the previous year, Congress and the forty-eight State Legislatures enacted 4,000 new bills. Also more than 200,000 new laws and ordinances were written on the statute books in the various political subdivisions of the United States, making a grand total of more than 2,000,000 laws and regulations. To record the interpretation of these laws by courts of last resort, there is an annual requirement of 650 large volumes. This figure does not take into account the much larger number of volumes required for the rulings of courts of intermediary and lower jurisdiction.

(b) "If it were possible for a man to read one new law each minute—for instance one like the federal income tax law—and if a man spent eight hours each day at his task, including Sundays and holidays, the end of the year would find about 25,000 laws as yet unread."

3. Where the money comes from that pays for the enforcement of all these laws is understood without trouble from the Census Bureau report of tax collections. Keeping pace with the new and needless laws is a highly advancing tax rate, that increases instead of decreases since the war. The citizen who can hardly meet his bills for living expenses and long ago gave up trying to continue in business or to even keep up a personally owned home should note that taxes collected by the federal government; taxes collected by state governments; taxes collected by county governments; taxes collected by cities and other incorporated places run into many billion dollars annually and shows something of the cost of a bureaucracy that no citizen wants. Its propagandists fatten on the tax payers like the demagogues of a classic slave state.

4. Senator Stanley once told the United States Senate:

(a) "It has been said that there are 15,000,000 pensioners on public bounty. If that is true, *there is an officeholder, that is a taxpayer*, on the backs of every two tax-producers in the United States. That situation crushed France and produced the French Revolution;

it was the bane and damnation of Germany. No political party in especial is to be blamed for this current situation, but rather a paternalistic regime that will eventually enslave and bankrupt this country. The cost of *government* has become unbearable. Too many functions of local and of state governments are being controlled by hidden bureaus in Washington. There is more power today exercised in these marble sarcophagi, by unknown experts, *politically controlled appointees of whispering propaganda, than by the courts themselves.*

(b) Americans seem to hold that we advance only as we legislate, no matter to what end.

(c) With many vociferous factions which exist in our midst there is a settled conviction that

(1) all evils yield to legislation;

(2) that legislation works automatically.

(d) "Expenditure arising out of wars has caused enormous waste in officialism. It is due to persistent growth of bureaucratic control; increase of the personnel of departments, and of commissions and of boards, and of bureaus, and of every other agency ever used or abused by a paternalistic regime.

(e) "Here in the United States the cost of government has become unbearable. The situation parallels pre-revolution France.

(f) "Continuation of existing circumstances will lead to conditions similar to those that brought about the French Revolution.

(g) "At present the Federal Government tries to regulate everything from the setting of a hen to the running of a railroad. A few years ago you could milk a cow without a federal inspector at your heels. The cost of this regulation has risen from \$232,000,000 in 1916 to several billion dollars in 1931."

5. Economists now state that

(a) One person out of every seven over the age of sixteen, who is gainfully employed in the United States is on the public payroll.

Contrast these figures with those of former years. Some time before the Civil War, one person in every thousand worked for the government—either city, county, state or national. During the administration of the late President Cleveland this ratio had risen to one person out of every hundred. Later, at the close of the war, the ratio was nearer one out of every

twenty. Now it is one out of every seven. On this scale when 1950 comes, every citizen in the country will be a government employe. At this rate there will be nothing left.

6. The expansion of Federal autoeracy was formerly hindered by the limits of taxation, but these have been removed from Congress by the amendment to the Constitution to levy income taxes. The income tax makes it possible for Congress to raise practically any amount. While a few men seemingly carry this burden it is in reality passed on by them to the general public.

Further food for thought may be gleaned from discovering something about the juggernaut machine that deprives the American citizen of his constitutional liberties and places upon the shoulders of long-suffering taxpayers an eight or ten billion dollar payroll for the support of administrators of intermeddling legislation of paternalistic scope, and exempt from income tax.

7. In this connection, the New York State Judiciary Convention reported in 1922:

(a) "In the United States there are everywhere being developed at enormous cost, in the most intensive fashion, a multitudinous bureaucracy with autocratic powers and arbitrary discretion, and a vast system of complicated and often conflicting administrative jurisdictions in relation to property and business and personal conduct which reach and affect almost every individual and most of which only a few years ago would have been regarded as of strictly personal concern and not to be tolerated by a free people.

(b) "Extensive legislation, executive and judicial powers are being vested and combined in administrative bodies in distinct and reckless disregard of the sound principles of the separation of governmental powers which was deemed so essential to the due protection of individual rights by the wise founders of our republican form of government.

(c) "Even controverted questions of law and fact, heretofore regarded as fundamentally and exclusively for judicial determination, are being intrusted to bureaucratic discretion; and for orderly judicial procedure as known to our fathers, and the competent and impartial interpretation of the laws by the learned judges and juries—arbitrary methods, and untrained

judgment are being constantly substituted."

8. Dr. Nicholas Murray Butler, president of Columbia University in speaking against the tendency to increasing centralization; and the proposition to establish a cabinet department of education, says:

(a) "A widespread illusion as to education, is that the more elaborate, the more complicated and the more costly the machinery of school organizations, the better will be the school. The reverse is the fact. Standardization, government-made uniformity, and bureaucratic regulation are not the allies of education but its mortal enemies.

(b) "In this supposedly individualistic nation, the growth of bureaucracy and unnecessary governmental machinery is beyond measure alarming."

9. Ex-President Coolidge speaking to the government's business organization, said:

(a) "I take this occasion to state that I have given much thought to the question of Federal subsidies to state governments. The Federal appropriations for such subsidies cover a wide field. They afford ample precedent for unlimited expansion. . . .

(b) "I say to you, however, that the financial programme of the chief executive does not contemplate expansion of these subsidies. My policy in this matter is not predicated alone on the drain which these subsidies make on the national treasury. This of itself is sufficient cause for concern. But I am fearful that this broadening of the field of government activities is detrimental both to the Federal Government and to the State Governments.

(c) "Efficiency of Federal operations is impaired as their scope is unduly enlarged. Efficiency of the State Governments is impaired as they relinquish and turn over to the Federal Government, responsibilities which are rightly theirs."

10. Senator Moses may be quoted in his statements that,

(a) "Paternalism runs riot in our legislatures today. Americans of seventy years ago would stand aghast if they knew how many activities which properly belong to the individual or the family, are now taken over by the government.

(b) When governments undertake projects that are nothing but disguised socialism, laws of



a very odd and curious nature will be found necessary."

One trouble it may be remarked in passing is that many persons confuse the term "paternalistic" and "paternal government" with something very kind, very generous, very sentimental, and quite magically provisional for all the ills and ails of life.

11. "The Burbanks of politics have grafted strange stalks upon the body of our statutes and have created a hybrid without pride of ancestry or hope of posterity. This used to be the land of the free. Now it is the region of the regulated. It is only human for some adults to try to continue to believe in the Santa Claus night. As it is now, the influence of the government is prenatal through the maternity bill and postmortem through the inheritance act. It controls us before we are born and after we are dead," says Senator Moses, again.

12. The Woman Patriot says:

(a) "The despotic machinery or apparatus of power which is steadily building up a bureaucratic political machine which, with 'Federal Aid' schemes, may, if unchecked, organize 'one big union' of 2,000,000 permanent Federal and State employes working against both the taxpayers and the political parties to increase their own salaries and bureaucratic power.

(b) "This machinery is steadily breaking down local self-government, individual liberty and party responsibility for legislation and is more political than the Republican or Democratic parties ever dared to be.

(c) "The parties playing 'partisan politics' are after temporary power and offices, always under the severe criticism of the opposing party, and always subject to change at the next popular election.

(d) "The bureaucrats, playing non-partisan politics are after permanent power and offices, and the establishment of a caste of professional bureaucrats, to govern the rest of us without regard to changes of administration or popular elections.

(e) "This bureaucratic apparatus of power, operating also upon State officials through subsidies to their salaries under the 'Federal Aid' system, will exercise pressure upon the government that no administration or political party can resist; and will place a yoke upon the necks of the American people heavier than George

III.'s 'multitude of new offices' and 'swarms of officers' against which the Declaration of Independence protested.

(f) "This bureaucracy, developing faster than any other in history, and already powerful enough to defy executive orders and budget bureau estimates, depends for its further growth and power upon centralized control of education, maternity and infancy, public welfare, the practice of medicine, child labor, marriage and divorce, minimum wage legislation, the employment of women, etc. Granted control of such subjects—either by pending constitutional amendments or by pending legislation sought to be placed beyond the power of the Supreme Court to be declared invalid—there is no limit in sight, either to the political power of this bureaucracy or of its cost to the taxpayers."

13. It is high time we enter upon a policy of decentralization. If children are to receive from the authorities that tender consideration that is childhood's right, each local community must organize its 'own job' and do it and it might let the parents have a little to say.

14. Shortly before his death A. H. Smith, then president of the New York Central lines, said in a public speech:

(a) "Some means must be found to restrain the ardor of our amateur statesmen. We have been indulging in an orgy of legislation that seems to have developed into delirium. No mortal knows the number of laws on the statute books but that conservative body, the American Law Institute, thinks that there are 100,000 separate laws. I believe this to be an underestimate.

(b) "To enforce these myriad laws requires the services of an ever-growing army. Take it at the ratio—that I understand is too low at that, as it is nearer one in twelve—but take it at the ratio that at least one man out of twenty is on a government payroll. That is if it takes one out of every twenty men to make the other nineteen behave it costs money. Costs so much money that we all know what the word "tax" means. There seems to be not enough capital left after paying taxes to provide for needed expansion of business which is pressing upon our great country.

(c) "To pay salaries for this law enforcement requires an average contribution of \$91 from every person in the United States over

ten years of age, who is gainfully employed.

On another basis the cost is an average of about \$350 per family."

Continuing proofs that "Americans are 'lawed' into existence; 'lawed' through life and 'lawed' out of it, more than any other nation on earth," it is interesting to note that,—

15. Henry L. Shattuck, chairman of the Ways and Means Committee of the Massachusetts House of Representatives, says:

(a) "The ultimate goal of present tendencies in federal legislation is bureaucracy of the worst sort.

(b) "General Welfare" is a broad term. It covers every field of activity. Should the construction relied upon by the advocates of such legislation be adopted, Congress would wield supreme power. The very existence of the states would be placed in jeopardy. Local self-government would be at an end. Bureaucracy would be in the saddle.

(c) "Every activity of our lives would be regulated from Washington. We would soon be in the condition of France where every detail of government is regulated from Paris, and which in treatises on government is cited as a horrible example of bureaucracy gone mad. By reason of the immense size of our country and the great diversity of climate, needs and conditions, the evils of bureaucracy would be far greater.

(d) "Such legislation is also discriminatory and unfair. All revenues of the Federal Government are derived from the people of the several states. Some states pay the government far more in proportion to their population than do other states, and in return, receive far less. Massachusetts pays the Federal Government far more in proportion to her population than the great majority of other states.

16. Former Gov. W. L. Harding, of Iowa, has said:

(a) "In my opinion the best government is the one that governs least. We must get back to governmental conditions as they existed before the war. We must localize government. The Federal Government has its functions and they are well defined. The same is true of our local governments. During the war period there was great encroachment on the part of the Federal Government on the prerogatives of our local institutions.

17. Former Senator Albert J. Beveridge of Indiana once said:

(a) "Americans are required by law to do more things and prohibited by law from doing more things than had been required or prohibited in autocratic Europe.

(b) "Nearly all these repressive, oppressive, autocratic laws have been forced by selfish minorities of whom our lawmakers and administrators are in terror.

(c) "This country is smothered by statutes. The expense of government has swollen to drop-sical bulk. There is today a government employe for every eleven Americans over 16 years of age. The bureaucratic mechanism is so cumbersome and intricate that no one understands it, and many superfluous laws are of a character to breed hypocrisy and furtive nullification.

(d) "The needs of the day are fewer laws, better enforced; less government, better administered, and more liberty, better ordered."

18. Albert J. Beveridge said again:

"Laws have become so numerous and complicated that lawyers and even the courts are forced to wander through a maze seeking some way out to light and sanity. The machinery set up by this mass of unwieldy legislation operates through swarms of government agents disciplining industry and trade, and eating up the substance of the people. The administration of government has become so intricate and involved through bureaus, boards and commissions, hives of bureaucracy, that nobody can understand its workings."

19. The Congressional Record cites Senator William H. King:

(a) "The struggle is now on between the consolidated and powerful Federal Government, dominated by bureaucratic forces, and the rights of the people as individuals, as the sources of power and authority—and the rights of local communities and of the states themselves. And the voices that should be strong for local self-government, for personal liberty, for freedom, and for those principles and policies that make a strong and vigorous democratic people, seem to be silent while the strident cries of the centralized forces in the land, either frighten the people into submissiveness or win them to the acceptance of dangerous and destructive policies.

(b) "What we need now is a leader who will



arouse the people to the necessity for putting hooks in the jaws of the Federal Government and of reviving the spirit of personal independence and local self-government which inspired our fathers in the days of the revolution.

(c) *"I wish a crusade would be inaugurated in all parts of the land, against the accursed spirit of bureaucracy and paternalism."*

(d) "Congress is becoming so impotent that many believe we sit in this chamber merely to O. K. bills prepared by government officials. It has been charged that we lack courage to resist those demands. There is much to support the charge."

Out of this multitude of expressed opinions the legislators of the land confronting current economic conditions refuse to read the writing on the wall "Too many laws; too much bureaucracy; too much centralization in Washington, D.C.; too much government dictation in medicine and business; too much government competition in private business and too much taxes is the curse of the nation."

#### **FINAL REPORT OF THE COMMITTEE ON THE COST OF MEDICAL CARE IS A MONUMENTAL FLOP**

The mountain labored and brought forth—a rat!

In other words, the final report of the Committee on the Costs of Medical Care is exactly what was to have been expected from the known group personnel, and the suspected backing of this investigation.

Even the strength of those fearless men who supported the minority report, could not save the majority report from a pitiable bias against the future good of medicine and for those special interests whose friends or representatives set forth such staggering statements as are the bulk of the majority report.

Such men as Dr. Olin West, secretary of the American Medical association; George E. Follansbee, chairman of the Judicial Council, M. L. Harris, former President and for years a member of the Judicial Council and Drs. A. C. Christie, Kirby S. Howlett, A. C. Morgan, Robert Wilson, and N. B. Van Etten favored the minority report that is in striking contrast to the seemingly subsidized findings of which a proof has just come to this office. Further, in a separate minority report, dissent

to the majority report comes from Dr. Herbert E. Phillips and Dr. C. E. Rudolph, representatives of American dentistry.

The editor of the ILLINOIS MEDICAL JOURNAL is not surprised at the findings of the committee. In the September, 1927, issue of the ILLINOIS MEDICAL JOURNAL protest was made as to the personnel of the committee and forecast of the result set forth, a prophecy now borne out through the findings of this majority report. That committee knew what was necessary to be found for its own immediate best interests. This report verifies the old saw "A man finds what he hunts for."

Under that date as mentioned above the editor printed in part this editorial:

#### **SOCIAL WORKERS, ECONOMISTS, FOUNDATION DIRECTORS, NEAR DOCTORS, AND A FEW MEDICAL MEN TO PASS ON EFFICIENCY OF MEDICAL SERVICE IN THE UNITED STATES**

##### **THE GROUP DISCUSSED PLANS THAT MAY REVOLUTIONIZE AMERICAN MEDICINE**

Plans have been formulated in May at Washington, D. C., to survey the entire field of medical practice in the United States. While views on the subject were intended to be confidential it is apparent that the object is to determine by investigation whether at present medical practice is carried on economically, and is adequately and effectively administered.

Call for this conference was made as a matter of convenience while the American Medical Association was in session and *was entirely outside of the program of the A. M. A.*

As we interpret it, the intention of the organization is to find out whether the prevention and cure of disease are conducted on lines that are thoroughly sound, or whether in any important direction there is need for fundamental changes of method. The program launched by this conference may lead to revolutionary developments.

Two sessions of the organization were held. About fifty individuals were present. Meetings were at the offices of the American Red Cross Society.

The following were among those present:

Dr. Winford H. Smith, director of Johns Hopkins Hospital, Baltimore; Dr. Charles E. A. Winslow, professor of public health at the Yale Medical School; Dr. H. H. Moore, educational director, United States Public Health Service, Washington; Dr. Louis I. Harris, Health Commissioner of New York City; John A. Kingsbury, secretary of the Milbank Memorial Fund, New York; Dr. John Shelton Horsley, surgeon, of Richmond, Va.; Walton H. Hamilton, of the Brookings School of Economics, Washington; Dr. E. L. Bishop, State Health Commissioner of Tennessee; Dr.

James B. Bruce, director of the Department of Internal Medicine at the University of Michigan; George E. Barnett, professor of statistics, Johns Hopkins University; Richard M. Broadley, of the Thompson Foundation, Boston; Surgeon General Hugh S. Cumming, of the United States Public Health Service; Dr. Haven Emerson, professor of public health administration, Columbia University; Miss Blanche M. Haines, of the Children's Bureau, Department of Labor, Washington; Dr. Shelby M. Harrison, vice general director of the Russell Sage Foundation; Dr. A. T. McCormack, State Health Commissioner of Kentucky; W. F. Willoughby, director Institute for Government Research, Washington; Dr. M. C. Winternitz, dean of Yale Medical School; Dr. Eugene R. Whitmore, professor of parasitology and pathology, Georgetown University.

Dr. David Reisman, professor of clinical medicine, University of Pennsylvania; Dr. Homer N. Calver, executive secretary of American Public Health Association; Dr. Louis I. Dublin, Metropolitan Life Insurance Company; Miss Hildegard Kneeland, Bureau of Home Economics, Washington; Dr. S. W. Welch, State Health Commissioner of Alabama; James A. Tobey, Borden Milk Company; Dr. Leo Wolman, of the National Bureau of Economic Research, New York; Edward A. Woods, of the Equitable Life Assurance Society; Dr. C. C. Pierce, director of Western division, United States Public Health Service, and Dr. Waller S. Leathers, Vanderbilt University.

The Washington conferences considered the effects of the practice of medicine, as now conducted in the United States. This subject is as broad as the field of medical science, is almost limitless in its scope, and naturally would include the influence on public health of agencies such as the Rockefeller and Russell Sage foundations, and of similar institutions functioning under enormous endowments, and also the present day problem of hospitalization, and of whether hospitals should show state ownership maintenance and operation on an increasing ratio.

In the contemplated survey, the vital issue of the nursing system is to be investigated. Under the proposed plan a thorough investigation is to be made of the roles at present being played in the realm of public health by colleges and universities, private medical schools, dispensaries, and industrial organizations which employ doctors and nurses for the care of their own staffs. The part played by individual physicians, surgeons and specialists of all kinds will of course come in for penetrating examination.

In the completion of the organization a committee of five was named and vested with authority to select thirteen additional members to consist of representatives of colleges, universities, and foundations in the hope that the latter would furnish the necessary sinews to carry on. This would amount to approximately forty thousand dollars for the first year and a larger sum for succeeding years. It was estimated that it would take five years to make the survey. The five members selected to start the machinery going are Dr. Barker of Johns Hopkins; Prof. Winslow of Yale; Dr. Smith of Johns Hopkins Hospital; Dr. Moore of United States Public Health Service, and Michel

Davis, representing medical foundation of New York.

Well, the five years mentioned as requisite for the work have gone by. The \$40,000 "estimated as needed for the first year's work" long since went up the flue with an estimated \$960,000 additional.

And all this money that came undoubtedly from the pockets of foundations, special interests and other lay or socialistic agencies attempting to run medicine better than the doctors can, and all the directions which at the outset came from such medical (?) experts as

"James A. Tobey, Borden Milk Company; Hildegard Kneeland, Bureau of Home Economics, Washington; Blanche M. Haines, Childrens Bureau" and other similiar lay dictators results in what?

In an insidious, flagrant and impudent conclusion that medical practice should become a tool of the government, and medical men enslaved as serfs of politically inspired lay dictators.

There is no blinking this. Sugar coated though the dose may be, bite through it and find out what happens. You get a mouthful of poison underneath the sweet. And the report is none the less reprehensible in that its signatures include those of highly advertised members of the profession, against whose ethics we make no protest but against whose undoubted self-interest, hinging upon fat jobs with lay organizations attempting to practice medicine, the bitterest indictments can and should and must and will be made. Tersely epitomizing the report it is nothing more or less than a recommendation that doctors and surgeons shall cease to practice medicine as individuals and instead work in mass formation as organized groups associated with hospitals and other organizations or semi medical bodies.

Now this group, guild, or soviet medical practice as you will, is the creed of the eight foundations that contributed financial support to the committee. A certain group of wealthy merchants and other business men appear to have gone haywire on the subject of running the doctors, the surgeons and affiliated medical groups of the country. Scenting a good thing from afar, and realizing the power of prerogative, with use and misuse not a matter of hair splitting ethics, the politicians and job seekers



have joined with them. It has been said that E. A. Filene was principally responsible for the establishment of this committee.

To get a little further into the mud, notice that this committee in its majority report endorses industrial practice involving elaborate schemes in which corporations will care for employees and their families, expansion of university student health services to take care of the townspeople as well as the undergraduate body, with its resulting development of exploiting physicians for gain of business and the placing of medical schools in competition with its own graduates.

It is, in other words, the soviet idea—destruction of the individual both as to achievement and ideals and sense of responsibility and elaboration of the community without recognition of the fact that the community is made up of individuals.

Like the chain that is no stronger than its weakest link, no community is stronger than its individuals, nor wiser, nor more efficient. Destruction of the efficiency of the individual means destruction of the community. This destruction will find no small aid in the recommendation by the majority report that medical costs should be placed on a group basis through insurance, taxation or both, while the recommendation is made further that health insurance shall be distinctly separated from unemployment insurance or insurance against loss of wages.

Nowhere in all their costly research has the majority report been able to disprove the fact that eighty per cent of all human ailments can be treated best by a general practitioner and the remedies he carries in a satchel. Yet the majority report recommends elaborate machinery to the Nth degree—lay controlled of course—and even recommends extension and enlargement of public health service so that more service will be available for more people and heartily urges further government invasion into the fields of medical practice.

This too in the face of the fact that the government is neither an expert professional nor business man. The railroad systems of the country can give excellent testimony as to the results of government control during war time. However, since H. H. Moore, director of the

investigation, is an ardent propagandist for insurance schemes and governmental practice, what could have been anticipated but just this result?

As stated before at the beginning of this article "The Mountain labored and brought forth a rat." A frightful rodent to gnaw at and destroy the spirit of Americanism, individualism and self-respect! The minority report supported by medical men of the highest ethics, men who have not taken the endowed foundations' bounteous shilling, sings quite another tune. It urges development and evolution of medical practice, a revision of medical economics, and above all the return of the individual general practitioner whom the majority report already has singing his swan song.

As the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION comments ably on the report in the current issue:

Both the majority and minority reports recommend continued study of medical economic problems by every type of agency. Certainly the studies already published by the committee indicate the value of such studies and the necessity for having facts on which to base conclusions and recommendations. This would seem to be particularly true in relationship to such studies as are available of various industrial medical services and of corporate practice. The minority report is particularly resentful that the majority made recommendations on the basis of inadequate studies in this field. Thus it says:

It is the belief of the minority group that the majority report has presented this question in a distorted manner. The evils of contract practice are widespread and pernicious. The studies published by the Committee show only the favorable aspects. They were selected because they were considered the most favorable examples of this type of practice in the United States. For each of these plans a score of the opposite kind can be found. The evils are inherent in the system although they may be minimized when a high grade personnel is found either among employees or medical group, or both.

Specifically, the recommendation of the minority group reads:

The minority recommends that the corporate practice of medicine, financed through intermediary agencies, be vigorously and persistently opposed as being economically wasteful, inimical to a continued and sustained quality of medical care, or unfair exploitation of the medical profession.

These two reports represent, therefore, the difference between incitement to revolution and a desire for gradual evolution based on analysis and study. The majority report urges reorganization of medical practice,

the development of centers, insurance; if necessary taxation to provide funds; expansion of public health services. The minority is willing to test any plan that may be offered if it conforms to the medical conception of what is known to be good medical practice. Indeed, the minority recommends, "that method be given careful trial which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice." One seems to hear that famous medical aphorism that has come down through the centuries: "Prove all things; hold fast to that which is good."

In addition to the majority report and the first minority report, several others by smaller groups appear in the final report. The dental members, as previously mentioned, oppose the plan for centers as utopian. They favor some form of compulsory health insurance under professional control. Dr. Edgar Sydenstricker would not sign because he felt that the recommendations did not deal with the fundamental economic problem the Committee was formed to consider. If by this he meant that the problems of the wage earner and of the poor include the provision of food, fuel, housing, clothing and transportation as well as medical service, he will find most of the world in agreement with him.

Early in the majority report it is emphasized that low incomes are largely responsible for the problems which the committee was created to investigate, but that subject is apparently never mentioned again in the majority report.

In September the Board of Trustees and the Judicial Council of the American Medical Association met with a group of physicians representing various portions of the country, to hear an analysis of economic problems. Last week the Board of Trustees met with the secretaries of state medical societies and with the editors of the state medical journals. At this meeting, Dr. William Allen Pusey, speaking for a committee appointed at the previous session, presented an analysis of the principles on which medicine must stand, its responsibilities to the public, and the return it has a right to expect from that public. In the twelve points under which he assembled his conclusions, several are especially significant in relation to the final report of the Committee on the Cost of Medical Care. They are briefly:

The good of society must be the sole aim of its public policies and the good of the patient the first consideration in the relations between physicians and patients.

Experience has shown that the vast majority of disease conditions afflicting man can be most satisfactorily and economically diagnosed and treated by a competent individual general practitioner.

Medicine's chief concern must be for the individual physician; the service rendered by individual physicians in the aggregate constitutes the great bulk of medical service. The quality of service which is given depends on the competency of the individual physicians who give it.

The medical profession asks a career of independence under conditions of free and dignified competition.

In its ideals of independence, medicine has a right

to control its own affairs. Its history of capacity to do so and altruism justifies this claim.

"The Journal urges, after careful consideration, support of the minority report signed by the representatives of the American Medical Association in the committee. The alinement is clear—on the one side the forces representing the great foundations, public health officialdom, social theory—even socialism and communism—inciting to revolution; on the other side, the organized medical profession of this country urging an orderly evolution guided by controlled experimentation which will observe the principles that have been found through the centuries to be necessary to the sound practice of medicine. On the one side are alined the forces that would practice one kind of medicine for the rich, another for the wage earner and the indigent; on the other side are the physicians who know that, from the point of view of the physician who studies bodies and minds, all are human beings. The physicians of this country must not be misled by utopian fantasies of a form of medical practice which would equalize all physicians by placing them in groups under one administration. The public will find to its cost, as it has elsewhere, that such schemes do not answer that hidden desire in each human breast for human kindness, human forbearance and human understanding. It is better for the American people that most of their illnesses be treated by their own doctors rather than by industries, corporations or clinics. The American Medical Association, through its Board of Trustees, supports the minority report. No doubt the House of Delegates, at its session in Milwaukee next June, will urge every physician affiliated with the Association to do likewise.

Probably no medical literature in the last three decades is of half as much import to the doctors of the country as the following text of the minority report of the Committee on the Cost of Medical Care as in this report medical integrity rather than medical interests reveals itself.

#### MINORITY REPORTS

Two minority reports and two statements constitute the views of those members of the committee who found themselves in conflict with the general tone or trend of the majority report.

#### FIRST MINORITY REPORT

The first minority report, which was signed by A. Christie, M.D., George E. Follansbee, M.D., M. L. Harris, M.D., Kirby S. Howlett, M.D., A. C. Morgan, M. D., Olin West, M.D., Robert Wilson, M.D., and N. B. Van Etten, M.D., draws attention to the failure of the Committee to show by facts that "organization" can accomplish what is claimed for it in the majority report. There is nothing in the experience of the medical profession to show that the "Community Medical Center" is a workable scheme or that it would not contain evils of its own which might be worse than the evils it is supposed to alleviate. This Medical Center Plan is suggestive of



the great mergers in industry in which mass production and centralized control are the principal features. It apparently disregards the fundamentals which make medicine a personal service and which require that the individual patient and not diseases or economic classes or groups be the object of medical care.

The objections to the Medical Center Plan are summarized as follows:

1. It would establish a medical hierarchy in every community to dictate who might practice medicine there.

2. It would be impossible to prevent competition among the many such centers necessary for large cities; cost would inevitably be increased by the organization necessary to assign patients to the various centers. This would add to the evils of medical dictatorship those of a new bureau in the local government with its attendant cost.

3. Continuous personal relationship of physician and patient would be difficult if not impossible under such conditions.

In the opinion of this minority group, the question of "Industrial Medical Service" has not been adequately or fairly dealt with in the majority report. For each of the favorable reports published (publications Nos. 5, 18 and 20) many instances could be cited wherein the results of industrial medical services have been exceedingly unfavorable. It is pointed out that in industrial medical services, mutual benefit associations, so-called health and hospital associations, and other forms of contract practice, no means have been found to prevent destructive competition between individuals or groups concerned with these movements. The studies published by the Committee show only the favorable aspects. They were selected because they were considered the most favorable examples of this type of practice in the United States. For each of these plans a score of the opposite kind can be found.

Utilization of subsidiary personnel is nothing new in medical practice. Already there is constant temptation in many fields to permit technicians to perform duties entirely unjustified by their knowledge and training. The minority expresses a word of caution relative to the dangers involved in permitting non-medical technicians to assume the duties which only physicians should undertake.

The Committee's first recommendation that medical service "should be furnished largely by organized groups of physicians, dentists" and so on is apparently predicated on the Committee's study on "Private Group Clinics." This minority group believes that the establishment of such clinics is in line of progress when they are a natural outgrowth of local conditions, but the studies published by the Committee, in the opinion of the minority, were far too few in number to constitute a safe base on which to erect so large and revolutionary a structure as is proposed. The majority report fails to consider the fact that multiplication of clinics or groups in large communities results in duplication of expensive equipment far beyond the needs of the community. Such a multiplication of medical facilities, instead of reducing overhead and the costs of medical care to the community, adds to this cost through the

duplication of plants. It is significant to note that the overhead in private medical practice averages only about 2 per cent higher than for medical groups in the lower brackets of gross income. As the gross income rises, the ratio of overhead becomes progressively less significant.

Other disadvantages of group practice are: restriction of freedom of action in respect to vacations, study, travel, attendance on scientific meetings and even publication of medical articles to all members except the heads of the group; comparatively static income of members of a group except that of the owner or owners; salary cuts, then discharge of employees to reduce overhead in times of depression; disruption of groups through death or disability of some able man or men around whom the group has been built, and the difficulty with which physicians are able to find employment in another group or are able to enter private practice when a group closes.

In spite of the extensive data available on the insurance systems of Europe and the evidence which can be produced to show that voluntary health insurance schemes have everywhere failed, the majority of the Committee makes the definite recommendation that this country adopt the thoroughly discredited method of voluntary insurance. A system of voluntary health insurance tied to the visionary medical center plan, which is offered as the "keystone" of all medical service, would plunge the medical profession into similar or more difficult problems than have been experienced by the European professions in its struggle against the various European insurance schemes. In the United States, contract practice is essentially health insurance and has already given rise to destructive competition among professional groups, inferior medical service, loss of personal relationship of patient and physician, and demoralization of the profession. It is clear that all such schemes are contrary to sound public policy and that the shortest road to commercialism of the practice of medicine is through the supposedly rosy path of insurance.

The objections to compulsory health insurance are almost as compelling to this minority group as are those to voluntary insurance. Proof of the evils of the compulsory system is at hand in our own experience in this country with the only compulsory system with which we have yet had to deal, workmen's compensation insurance. Under workmen's compensation, groups are soliciting contracts, often through paid lay promoters; laymen are organizing clinics and hiring doctors to do the work; standards of practice are being lowered; able physicians outside the groups are being pushed to the wall; the patient is forced by his employer to go to a certain clinic, and the physician is largely under the control of the insurance companies. These are not visionary fears of what may happen but a true picture of widespread evils attending insurance practice. No better example should be needed of what must happen to medical care if compulsory insurance is extended to families.

The total cost of medical care is usually increased when it is paid for through insurance, because the cost of operation of the insurance plan must be added to the

cost of medical care and the number of persons sick and the number of days' sickness per capita always increase under any insurance system. The Majority Report registers approval of insurance but disapproves of insurance companies. The minority group agrees with the principle that, in any contract practice plan involving an insurance principle, this principle should be applied through a nonprofit organization. The minority group has not attempted to marshal all the facts or arguments that can be used against health insurance but has endeavored to show that there are great dangers and evils in insurance practice which must be set over against the advantages of distributing the costs of medical care by this method. The minority group believes that the majority report has minimized these dangers and evils.

The minority recommendations follow:

"I. The minority recommends that government competition in the practice of medicine be discontinued and that its activities be restricted (a) to the care of the indigent and of those patients with diseases which can be cared for only in governmental institutions; (b) to the promotion of public health; (c) to the support of the medical departments of the Army and Navy, Coast and Geodetic Survey, and other government services which cannot because of their nature or location be served by the general medical profession; and (d) to the care of veterans suffering from bona fide service-connected disabilities and diseases, except in the case of tuberculosis and nervous and mental diseases.

"II. The minority recommends that government care of the indigent be expanded with the ultimate object of relieving the medical profession of this burden.

"III. The minority joins with the Committee in recommending that the study, evaluation and coordination of medical service be considered important functions for every state and local community, that agencies be formed to exercise these functions, and that the coordination of rural with urban services receive special attention.

"IV. The minority recommends that united attempts be made to restore the general practitioner to the central place in medical practice.

"V. The minority recommends that the corporate practice of medicine, financed through intermediary agencies, be vigorously and persistently opposed as being economically wasteful, inimical to a continued and sustained high quality of medical care, or unfair exploitation of the medical profession.

"VI. The minority recommends that methods be given careful trial which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice.

"VII. The minority recommends the development by state or county medical societies of plans for medical care."

#### SAFEGUARDS IN DISTRIBUTION OF MEDICAL COSTS

This minority group agrees that any plan for the distribution of medical costs must have the following safeguards:

1. It must be under the control of the medical profession. (A "Grievance Board" to settle disputes, having lay representation, is permissible and desirable.)

2. It must guarantee not only nominal but actual free choice of physician.

3. It must include all, or a large majority of, the members of the county medical society.

4. The funds must be administered on a nonprofit basis.

5. It should provide for direct payment by the patient of a certain minimum amount, the common fund providing only that portion beyond the patient's means.

6. It should make adequate provision for community care of the indigent.

7. It must be entirely separate from any plan providing for cash benefits.

#### COUNTY SOCIETY PLANS FOR MEDICAL CARE

The minority group states its reasons for favoring thorough trial of the county society plan for furnishing complete medical care as follows:

1. It places responsibility for the medical care of the entire community on the organized physicians of the community.

2. It places medical care under the control of the organized profession instead of in the hands of lay corporations, insurance companies, and so on.

3. It places responsibility for the quality of service directly on the organized profession. It is in fact the only plan that guarantees quality of service and makes it the only basis of competition.

4. It removes the possibility of unethical competition because it includes all the physicians of the community and fixes a fee schedule.

5. Solicitation of patients, underbidding for contracts and other evils of the usual insurance plans are eliminated.

6. Freedom of choice of physician is assured and the essential personal relationship of physician and patient is thereby preserved.

7. It is the only plan that includes all classes, from the indigent to the wealthy.

8. It is adaptable to every locality, both urban and rural.

9. It provides for a minimum cost of administration by operating on a nonprofit basis.

10. It provides for payment, by every patient with income, of a certain minimum amount before the insurance is in operation. The minimum rises with the patient's income. This provision alone will operate to avoid many abuses in all other types of insurance practice.

11. It provides for means of certification of disability separate from the attending physician.

12. Cash benefits do not form a part of the plan.

#### SECOND MINORITY REPORT

The second minority report, which was signed by Herbert E. Phillips, D.D.S., and C. E. Rudolph, D.D.S., is in agreement with the first minority report in strongly emphasizing the necessity of maintaining professional standards and the position of the general practitioner. This group agrees with the first minority group that the majority is unduly critical of the professions. The second minority group joins with the first in declaring the medical center plan of the majority a utopian concept involving many problems too visionary or problem-



atic to justify inclusion in an authoritative report of this kind.

The second minority group believe that the method of payment for medical service need not interfere with the highest professional standard or the close personal relations between practitioner and patient. Furthermore, this group is of the opinion that the introduction of compulsory health insurance under professional control would eliminate the objectionable features. It is in accord with the first minority group on the development by state or county medical society of plans for medical care.

The statements of Edgar Sydenstricker and Walton H. Hamilton are largely criticisms of the methods used by the Committee. They are of the opinion that the preliminary studies and the recommendation do not deal adequately with the fundamental economic questions which the Committee was formed primarily to study and consider.

#### FOR VEST POCKET REFERENCE HERE IS A SUMMARY OF THE MINORITY REPORT OF THE COMMITTEE ON THE COST OF MEDICAL CARE MINORITY RECOMMENDATIONS

Nine members of the committee signed a minority report. The minority recommended:

"That government competition in the practice of medicine be discontinued and that its activities be restricted entirely to certain types of service.

"That government care of the indigent be expanded, with the ultimate object of relieving the medical profession of this burden.

"That coordination of medical service be considered an important function for local communities.

"That united attempts be made to restore the general practitioner to the central place in medical practice.

"That the corporate (i. e., organized) practice of medicine be vigorously and persistently opposed as wasteful, inimical to high quality, or productive of unfair exploitation of the medical profession.

"That careful trial be given methods which can rightly be fitted into our present institutions and agencies without interfering with the fundamentals of medical practice.

"That state or county medical societies develop plans for medical care."

#### SHOW ME THE STORK

Little Billy had just been told that a stork had brought him a little sister. "Would you like to see her?" asked the doctor. "No," said Billy, "but I'd like to see the stork."—*Nursing Times*.

### ORGANIZED MEDICINE SHOULD WIELD TREMENDOUS INFLUENCE IN CIVIC AFFAIRS. THE NUMERICAL STRENGTH OF THE MEDICAL PROFESSION.

Doctors of medicine represent the largest single group of professional men in the country. There are about 160,000 graduate physicians in the United States, of whom 140,000 are believed to be in active practice.

The twelfth edition of the American Medical Directory lists 159,050 names and indicates that physicians are located throughout the country as follows:

State	Number
Alabama .....	2207
Arizona .....	494
Arkansas .....	1977
California .....	10109
Colorado .....	1898
Connecticut .....	2165
Delaware .....	278
District of Columbia.....	1827
Florida .....	1762
Georgia .....	2888
Illinois .....	11382
Indiana .....	4073
Idaho .....	383
Iowa .....	3125
Kansas .....	2168
Kentucky .....	2867
Louisiana .....	2076
Maine .....	989
Maryland .....	2480
Massachusetts .....	6595
Michigan .....	5589
Minnesota .....	3075
Mississippi .....	1567
Missouri .....	5640
Montana .....	484
Nebraska .....	1785
Nevada .....	131
New Hampshire .....	567
New Jersey .....	4357
New Mexico .....	374
New York .....	21008
North Carolina .....	2372
North Dakota .....	515
Ohio .....	8653
Oklahoma .....	2484
Oregon .....	1275
Pennsylvania .....	12051
Rhode Island .....	844
South Carolina .....	1292
South Dakota .....	585
Tennessee .....	2962
Texas .....	6475
Utah .....	489
Vermont .....	499
Virginia .....	2584
Washington .....	1920
West Virginia .....	1782
Wisconsin .....	3104
Wyoming .....	234
Medical officers U. S. Army & Navy (1918).....	2587
Canal Zone .....	91
Alaska .....	47
Hawaii .....	288
Porto Rico (Dist.) .....	359
Philippine Islands .....	1825

A physician reaches in the course of the year practically every home in the United States.

As moulders of public opinion the medical profession can exert an influence that is not approached by any other profession or trade because they are closer to the hearts of the people than any other body of men.

As an advertising medium the influence of the profession has been in a large measure overlooked by the commercial industries of the country.

The doctor wields a large influence in the selection of foods, clothing, house furnishings and equipment and other things which affect health, sanitation and comfort. For this reason the farsighted manufacturer seeks to obtain the support of the medical men both through advertising and through personal contact at conventions, and through detail men who call personally on the individual doctor.

### AUXILIARY NEWS

The members of the Woman's Auxiliary to the Illinois State Medical Society offer congratulations to Mrs. T. O. Freeman of Mattoon, Illinois, on her election as Trustee, University of Illinois, on the Democratic Ticket, and wish her great happiness and success in this new endeavor.

The Board Meeting of the Illinois Auxiliary held in Chicago, November 19, was probably one of the most successful and well attended Board Meetings in the history of the Illinois Auxiliary. Officers, Chairmen of Committees, County Presidents and Councilors came from all sections of the State and reported their activities, and consummated important business. Mrs. E. W. Mueller, President, is in touch with every angle of the auxiliary's work, and is setting a high standard for efficiency and accomplishments. Mrs. Mueller presented to the Board a tentative program for the Annual Convention to be held in Peoria, May 16, 17, and 18, 1933, which was approved.

Some of the Down-State board members who came to Chicago for this meeting were: Mrs. Solomon Jones, Danville, president-elect, Mrs. E. S. Allen, Arcola, Mrs. I. L. Foulon, East St. Louis, Mrs. H. I. Conn, Newman, Mrs. A. D. Middleton, Bloomington, Mrs. W. R. Rhodes, Toledo. Of course all the Chicago members were present.

It is the constant aim of the Board to in-

crease the number of County units and augment the membership at large. The officers and councilors are untiring in their efforts, and while the growth of the auxiliary is not spectacular it is a healthy, sturdy growth and the influence of the Auxiliary is becoming an important factor.

The members of the Board urge every Doctor who is a member of the Illinois State Medical Society to influence his wife to become a member of the Woman's Auxiliary.

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One very important decision made by the Board was that the reports of Officers, Councilors and Chairmen of Committees for the past year be printed in the "Bulletin." When these reports are printed please preserve these publications for much valuable information will be contained therein. They will be printed over a period of time, as space permits.

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In Chicago there are five branch Auxiliaries—Englewood, Jackson Park, Aux Plaines, North Shore and North Side.

The North Shore Branch have a novel way of holding their monthly meetings, i. e., at various hospitals. Usually an instructive talk is made by the Superintendent or Superintendent of Nurses, followed by tour of the hospital, then a social hour with tea, and discussion on medical and legislative matters.

The Jackson Park Branch hold their meetings at various homes, and devote part of the time to programs supplied by the Program Committee of the State Auxiliary, and the balance of the afternoon to book reviews, musical numbers, lectures or cards. In this manner the objectives of the Auxiliary are kept before the members, and at the same time a social atmosphere is maintained for those who prefer that phase of contact.

Aux Plaines Branch out on the West section of Chicago is a very active Auxiliary. At their October meeting Mr. W. Ham, Assistant States Attorney, talked on "Prosecution of the Quack" and in November they met at a Bridge Tea.

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One of the hardest working and most conscientious Committee Chairmen, is Mrs. A. I. Edison, Chairman of Hygeia. The State of



Illinois has fallen out of line with other states in number of subscriptions secured for "HYGEIA," and Mrs. Edison urges that each County concentrate on this work. This magazine which is the mouthpiece of organized medicine should be placed in all Public Libraries, Public Schools and Reading Rooms. During these depressing times these organizations have not funds to subscribe for this magazine and it is suggested that auxiliaries throughout the state give subscriptions to Public Libraries and Schools where they are read and appreciated. Mrs. Edison has made an extensive survey of this field and will be glad to advise with the various County Auxiliaries in helping to obtain a wider distribution of this very excellent magazine.

Mrs. F. P. Hammond.

### SOCIAL INSURANCE\*

(Continued)\*

#### COUNTER-SUGGESTIONS

The medical and dental professions of this country are giving the American public the best all-round health services ever enjoyed by any nation and are on the whole serving the nation as well or better than any other group of men. These two professions have a very general and most intimate contact with the citizens of the nation. No other professions are in so favorable a position to exert so great an influence for good as are these two if they will but use their opportunity rightly and wisely. If they are to accomplish the greatest possible good they must make still closer contacts with and exert still greater influence upon the political, social and ethical life of the nation. These professions as a whole and as individuals must strive unceasingly and untiringly, in the future as in the past, for still further improvements in their respective fields. If unhampered by lay bureaucratic supervision and control in the future as they have of the whole been in the past we have every assurance that they will proceed to new and greater achievements; if, on the contrary, unduly hampered, we have every reason to expect medical service to deteriorate and medical progress to cease as it has already done in those countries whose governments have interfered the most.

In order to maintain the high standard of medical services prevailing, the professions must insist that the governments of the various states maintain high standards of requirements for admission to the practice of the professions. In order to accomplish this, continued education of the public in this regard is necessary.

The organized professions through their proper local organizations must see to it that all undesirables are weeded out and that the individual members render efficient service for adequate and yet reasonable fees. The professional man who makes unreasonably exorbitant charges for his services is even a greater menace to private practice than is he who charges too little. The former is the one to blame for most of the antagonism and resentment among the laity, while the latter because of his unfair competition makes it difficult for his colleagues to secure the necessary means for graduate work so essential to growth and progress.

Having presented to the attention of my readers through these articles the defects of Social Insurance as practiced at present in foreign countries and also having shown the dangers of such a system if allowed to become fixed upon the American Citizen, I offer as counter-suggestions that the government instead of wanting to take over new functions and new powers would do better were it to make every effort to perform acceptably the duties with which it now is entrusted. We of the medical and dental professions insist that the government give better medical services to its prisoners, delinquents, insane, paupers and government wards in general; that it give more serious attention to sanitation and hygiene, particularly to ventilation of public conveyances and places where large numbers of people congregate, and to the prevention of pollution of our sources of community water supply such as lakes and rivers.

The allied professions in conjunction with the government should give more serious attention to the teaching of personal hygiene in our schools, colleges and universities. Our educational institutions should teach the rising generation the value of integrity, industry, thrift and frugality, and that there is no substitute for these, not even legislation. Teach them that trying to keep up with the Joneses is not nec-

\*Eleventh installment of Dr. Edward H. Ochsner's articles on Medical Economics.

essarily a virtue and that the installment buying of luxuries and trying to keep ahead of the Browns is poor business. Teach them that to learn how to get one's money's worth and to acquire a competence are much more worth while. Teach them that trying to get something for nothing, particularly through gambling, whether it be crap-shooting, poker, or buying stocks on margin, is fundamentally dishonest and almost invariably leads to disaster.

Better provisions for safe-guarding the savings of our workers should be made and if there is no way of accomplishing this, there should be established a compulsory government insurance against sickness whereby the individual worker pays for his own insurance, in other words, separate entirely medical services and cash benefits. The physician should under no circumstances be medical adviser and insurance adjuster as he is in fact in all systems of Compulsory Health Insurance now in vogue.

Social Insurance is man's latest attempt at finding a means whereby social justice may be attained. But like all panaceas so far advanced it is sure to make conditions worse rather than better. The first and most important thing to do is to secure honest and efficient government and this cannot be accomplished until the general standard of honesty has greatly improved which is simply another way of saying that there is no substitute for character of the individual members which make up a nation.

*FINALLY, devise means and methods whereby remuneration and reward shall be in direct proportion to time and energy legitimately expended and to the value of services rendered to society.*

While the underlying purpose of Social Insurance is to secure the more equitable distribution of wealth and to employ the weapon of taxation in order to secure the necessities and comforts of life to the poor at the expense of those with larger incomes, the system is of necessity a failure because it does not conform with the foregoing fundamental principle of justice but instead rewards the inefficient at the expense of the efficient; the lazy, shiftless and immoral at the expense of the industrious, thrifty and moral. While it is unquestionably true that certain individuals have been and are still receiving money for which they have not rendered an equivalent service to society, treb-

ling and quadrupling and even ten-fold the number of these parasites does not correct the evil. The remedy must be much more fundamental.

This formula will require the best brains of the country for its practical application, but I am firmly convinced that it is the only formula that offers a practical solution to our social and economic ills not only of the allied professions but of society in general. If it is followed, those members of society who are doing the world's work will have enough money to employ capable dentists and physicians of their own choice and will then be assured adequate health service.

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EDUCATIONAL COMMITTEE  
ILLINOIS STATE MEDICAL SOCIETY  
REPORT FOR NOVEMBER, 1932  
SPEAKERS' BUREAU

37—Physicians addressed approximately 3,900 people representing the following groups:

Women's Clubs  
Parent Teacher Associations  
High School Assemblies  
Rotary Clubs  
Kiwanis Clubs  
Teachers Institutes  
District Meetings of Women's Clubs  
Household Science Groups  
Record Librarians  
League of Women Voters  
Mothers' Clubs  
Pre-Medical and Pre-Dental Club

It is interesting to note the subjects that were selected for discussion

Mental Health  
Thrift in Health  
Health of the Child  
Health of the Adult  
Value of Animal Experimentation  
Nutrition and Malnutrition  
Health of the School Child  
Eye, Ear Nose and Throat Conditions  
Relation of Health to School Work  
Discipline  
Adolescence  
Diphtheria  
Cancer  
Heart Disease  
Patent Medicines

SCIENTIFIC SERVICE COMMITTEE

13—Scientific programs were arranged for medical societies:

Schuyler—Arno B. Luckhardt—Recent Advances in Endocrinology  
Will-Grundy—G. Henry Mundt  
Rock Island—Abraham Levison—Diagnosis and



Treatment of Cerebral Hemorrhage in the Newborn  
Will-Grundy—Edwin W. Hirsch—Prostate  
South Bend, Ind.—Aaron Arkin—Hodgkins Disease  
Will-Grundy—Harry R. Hoffman—Mental Diseases  
and Crime

Bureau—Nelson M. Percy—Goiter  
Bureau—James H. Hutton—Thyroid and Ovarian  
Disturbances at Puberty and the Menopause  
Will-Grundy—Marshall Davison—Recurrent Chole-  
cystitis Following Cholecystotomy  
Sherman Hospital, Elgin—Leroy Sloan—Diagnosis  
of Brain Lesions

LaSalle—Ernestine Kandel—Recent Advances in  
Knowledge of Pernicious Anemia

LaSalle—Lester R. Dragstedt—The Etiology of Gas-  
tric Ulcer

Will-Grundy—James T. Case—Spinal Anesthesia

Letters sent to Secretaries offering help with pro-  
grams on Mental Hygiene and the Handicapped Child.

#### PRESS SERVICE

695—Releases to Illinois Newspapers.

410—Regular Press Service.

27—Monthly Service.

33—Home Bureau Advisers, Material on Colds.

55—Newspapers, re meeting Bureau County Medical  
Society.

105—Newspapers, re meeting LaSalle County Medical  
Society.

32—Newspapers, re meeting Randolph County Med-  
ical Society.

7—Newspapers, LaGrange, articles on Diphtheria and  
Scarlet fever.

23—Community papers, re meetings Branch Societies,  
Chicago Medical Society.

3—Association of Commerce, re meetings Chicago  
Medical Society.

16—Articles written and approved.

Dieting, Fresh Air, Birthmarks, Dangers of Sinus  
Infection, Percussion, Scarlet Fever-Scarlatina-Scarlet  
Rash, Tularemia, Deformities of the Feet, Fatigue and  
Health, Middle Ear Abscess, The American Disease-  
Appendicitis, Clothing the Young Child, Fever, Diph-  
theria Immunization, Four Common Fallacies, When  
Your Child Chokes.

#### RADIO

48—Radio Talks from WGN, WJJD, WAAF

John F. Delph—Hoarseness

Frank Maple—The Expectant Mother

Frederick Balmer—Menaces to Health

E. J. DeCosta—Backache in Women

Sol Litt—Holmes, Semmelweis and the Fight Against  
Child-bed Fever

A. W. Stillians—Questioning the Skin

Albert G. Peters—Errors in Refraction

Percy E. Hopkins—Hernia

R. Robinson Duff—Great Emergencies

F. R. Schmidt—Your Skin in Winter

Vernon Mrazek—Acne

S. J. Taub—Bronchial Asthma

Marion S. Fink—Birth Marks and Moles

H. T. Haverstock—Your Eyes

Bernard E. Sayre—Toxic Goiter  
Bernard Fantus—What to Do and What Not to Do  
For Fever

J. Baily Carter—Rheumatic Fever

C. J. McMullen—Diabetes

G. E. DeTrana—Appendicitis

P. L. Jeppson—The Heart in Health and Disease

Irving Treiger—Leakage of the Heart

R. W. Kerwin—Nasal Catarrh

#### MISCELLANEOUS

Periodic Health Examination blanks sent to physicians  
in state.

30—Package Libraries loaned to physicians

Special diphtheria material to two counties sponsor-  
ing immunization campaigns.

Notices sent to physicians concerning meetings of  
Bureau, Perry, and LaSalle County Societies.

Scientific medical films secured for physicians and  
popular health films loaned to lay groups.

Special Announcements given to lay meetings of  
Chicago Medical Society.

#### A REPORT OF THE PHYSICALLY HANDI- CAPPED CHILDREN'S COMMISSION

To the Honorable Members of the Fifty-seventh Gen-  
eral Assembly:

Pursuant to Joint House Resolution number 20,  
adopted by the House, March 21, 1929 and concurred  
in by the Senate, May 21, 1929, wherein was designated  
as a commission, the Director of Public Welfare, the  
Director of Public Health and the Superintendent of  
Public Instruction to report to the Fifty-seventh Gen-  
eral Assembly its findings and recommendations per-  
taining to the conditions of the Handicapped children  
of Illinois, their hospitalization, their education and all  
other facts pertinent to their welfare, the Commission  
begs to submit the following report:

1. The Commission wishes to acknowledge its obli-  
gations to the fine spirit of co-operation of those help-  
ing to make the survey throughout the State. In each  
county a local commission consisting of three members  
was appointed, one by the Director of Public Welfare,  
one by the Director of Public Health and one by the  
Superintendent of Public Instruction. Usually the  
County Superintendent of Public Schools, a social  
worker, if one was available, and a physician of repute  
made up the county commission. The local commis-  
sions worked through school teachers, social workers,  
nurses and physicians and others who were available.

2. Sixty-four counties made fairly thorough surveys,  
thirteen made partial surveys and twenty-five made lit-  
tle or no response. Ten thousand, nineteen children  
have been listed with their addresses, ages, school  
attendance and a probable diagnosis. When the partial  
and non-reporting counties have made their reports the  
number of children will exceed twelve thousand. It is  
also evident that there will be five thousand others who  
have not been located. This will bring the total number  
of handicapped children in the State up to seventeen  
thousand. In such counties as Rock Island, LaSalle,  
Kankakee, Sangamon, Vermilion, Champaign, Steven-  
son, Macon, Logan and Williamson where crippled chil-

dren's work has been long established large numbers of handicapped boys and girls have been reported, not because there are more in these counties, but because clinic publicity and follow-up care have aroused county wide interest and people are aware of the location of these afflicted children. Counties that employ county and school nurses find more handicapped children. Since mid-wives deliver many babies in the State, these born with defects are not discovered until they enter school.

3. The percentage of crippled children under twenty-one in this State has been figured conservatively at 2.2 crippled children to each one thousand of the general population. This average was taken from the listing of eight of the well worked counties. Williamson County, however, has only 1.8 crippled children per thousand of population while Edgar county has 3.4 and Sangamon county 3.5. The explanation for this is found in the fact that Williamson county is fortunate in having a county plan with two fine special schools that have reached every corner of the school districts. This county too seems to have escaped wide-spread epidemics of Infantile Paralysis. Edgar county has county and school nurses who have no doubt, found and listed every crippled child in the county. Sangamon county has had crippled children's clinics twice a month for the past several years with its attendant publicity. Springfield has a fine special school and the only crippled children's hospital in the State outside Cook county. At St. John's Sanitarium, crippled children receive excellent surgical and follow-up care. There are about one hundred beds, aside from an occasional bed offered temporarily to some special case; these are all the beds available to down-state children.

4. There are two thousand, sixty-four children who are listed as not attending school at all or whose attendance is very irregular. Almost every one of these can learn if they be given the opportunity. Education should be made available to every crippled child in the State. To educate a crippled child converts a liability to an asset. The county special school where rural and town children alike are trained has been tried in two counties and found successful. This is an original Illinois idea having been suggested by Mr. W. S. Booth, Assistant Superintendent of Public Instruction. The boys and girls are brought to school and returned home each day by busses or automobiles.

5. There are twelve hundred, twenty-six youths of high school age in Illinois who need vocational training. A wide choice of trades is possible and these young people can be taught to earn their living, thus relieving counties of their support.

6. The following list shows the numbers and kinds of handicapped children revealed by the State wide survey:

Infantile Paralysis .....	2308
Bone Infection .....	907
Club Feet .....	418
Flat Feet .....	268
Spastic Paralysis .....	1062
Dislocated Joints .....	468
Rickets .....	386

Arthritis .....	197
Accidents .....	555
Birth Defects .....	497
Spinal Defects .....	650
Miscellaneous .....	2295

7. Infantile Paralysis has afflicted two thousand, three hundred and eight children with handicaps. Almost every one of these can be greatly relieved by proper care immediately following the illness. An excellent example of this fine care may be seen at St. John's Sanitarium among the children who were victims of this epidemic of last summer. Some will be completely restored, other victims of past epidemics can be put into splendid condition by skilled surgical care. The Surgical Institute for Children, University of Illinois College of Medicine, in Chicago, supported by Elks and Rotarians, has through the University's orthopedic staff, virtually rebuilt a number of boys and girls this past year who are now attending a regular school every day and rapidly forgetting that they were once handicapped.

8. Bone Infections, which have caused nine hundred, seven to be crippled, can frequently be prevented by sanitary measures in food production, protection from contact with tuberculous patients and hygienic care of children in the removal of foci of infection. These children must have hospital care in order to live, and often long periods of it, if they are to regain usefulness.

9. There are four hundred, eighteen children listed with the deformity of club feet. Each of these, without exception, can be materially benefited and nearly every one cured to the extent of foot stability. A young club-footed adult should be difficult to find in Illinois at the close of this decade. Efficient social service through surgical care, and complete family co-operation, will completely remove the deformity in club foot children.

10. There are two hundred, sixty-eight children listed as having flat feet to a degree necessitating clinic care. A very few need hospital care, but most of them will be helped through the clinics.

11. The tragic report of one thousand, sixty-two children listed as having spastic paralysis, pictures a long, long trail of little folks with frequently useless bodies and often defective speech, which forms a barrier to every avenue of self-expression. Everyone of these must have special muscle training and many will need surgery. Certainly Illinois should give more attention to the prevention of the causes of spastics. The question of mid-wives, delivery injuries, breeding of syphilitics, alcoholics, the insane, the prevention of high fevers and spasms in the young should be carefully investigated and remedies proposed by expert advice.

12. The four hundred and sixty-eight boys and girls born with joints dislocated will need the best of operative care to restore them. The promise of recovery is very good if the children are reached before six years of age, but after that the probability of complete recovery lessens each year.

13. Three hundred, eighty-six children have bow-legs resulting from rickets. Properly trained social service workers, acquainted with modern pediatrics, feeding and medication of rickets, will prevent this



disease and its deformities by selecting children and directing their clinical attendance. Surgery if necessary, will help greatly, but hospital accommodations for surgery are denied the greater percentage of the young people due to the difficulty of financing the care. State-wide educational publicity should entirely prevent this disease by making better co-operation between families, field workers and their physicians.

14. Arthritis makes pitiful stiff jointed little youngsters who sit all day long in a fixed position, denied education and every line of useful pleasure. There are one hundred, ninety-seven of these in Illinois. Sycamore has a little ten year old girl who walks now for the first time in her life. She was given care at the Surgical Institute for children, College of Medicine, University of Illinois, and she was maintained during her stay there by the Elks. Many such cases could be cured if more beds were available.

15. Accidents of many sorts have crippled five hundred, fifty-five boys and girls in Illinois. A few have amputations, many have burn scars, which have caused disabling contractions, some have fractures which will need expert surgical care to make the broken bone unite. Of the latter two cases, many can be almost completely restored.

16. Four hundred, ninety-seven children have birth defects. A great number of these are curable if taken in time. Wry necks take about two weeks of hospital care and then plaster casts for a little while. No one should have to bear this embarrassing defect nor should anyone have to go through life with a hare-lip and cleft palate. There are other birth defects which are curable besides these mentioned, but the remedy takes surgical care and hospitalization.

17. No boy nor girl should grow into adulthood with a hump or a crooked spine. Illinois can prevent this heart breaking condition by discovering T. B. Spine early and can cure it, if the deformity is not allowed to set. Efficient orthopedic field work and good clinic care will prevent it and expert surgical attention will assist in restoring a normal condition. Incidentally, the straightening adds years to the child's life. There are known to be six hundred, fifty such children in this state.

18. The number under miscellaneous is large, two thousand, ninety-five due to the grouping of cardiacs, various atrophies, dystrophies and hemophiliacs. The medical and orthopedic staffs at the College of Medicine, University of Illinois, are deeply interested in hemophilia. Many of these cases are hospitalized at the surgical institutions for children, where under the direction of Dr. Carrol Birch, extensive investigation is being made from the medical and serological viewpoints. Some of the desperate cases have had their hemorrhage sufficiently controlled by medication to allow teeth and tonsils to be removed without fatality, and at this stage fresh ovary was placed in the abdomens of some of the cases. An extensive study of the blood is being made and we hope that some remarkable facts may be obtained which will aid materially in the prevention of this disease. What has already been done is really an event of the age since for centuries many children have died of this strange malady. The miscel-

laneous group also included many difficulties not distinctly classified and it is also necessary to list here many children whose survey reports gave no description nor any attempt at diagnosis. Of course, they must belong under other headings and are probably curable if they can be reached in time.

19. While the greater majority of the parents of these eleven thousand children are not indigent yet few of them have sufficient means to bear the expense of prolonged hospitalization for crippled children. Hospital rates though justifiable, are far too high to be dreamed of by the majority of these parents, and the little folks grow up deformed. If a hundred bed hospital could be made available for down-state children, great strides could be made towards their restoration. Then too, in the efforts made to cure these boys and girls, discoveries would be made which might prove the means of saving the lives of those now thought incurable.

20. There are nine orthopedic surgeons on the staff of the Ill. Elks Crippled Children Clinics throughout the State, co-operating with local physicians and surgeons. Only cases of short duration can usually be handled in local hospitals; prolonged stay is impossible. The Shrine hospital and other hospitals of Chicago for children have perhaps two hundred, fifty beds but what are these among nine thousand children who are waiting? One hundred beds for down-state children would reach a great many and save them. The University of Illinois College of Medicine with such clinic possibilities would soon become world known for the excellent training of orthopedic surgeons. It should lead the nation in its discoveries for the prevention of crippling diseases and its success in involving curative treatment.

Besides the reduction of the tax payer's burden, in the elimination of these charges of the State, they will become producers and thereby add materially to the wealth of the State; instead of being tax consumers, they will become tax payers.

To rebuild the lives of the State's unfortunate cripples is economically sound, socially fair and morally right. If it were merely an experiment there might be some justification in postponing a program of this sort but the results of hospitalization, education and clinical care are too obvious to offer any excuse for delay.

Therefore, your commission wishes to offer for your careful consideration the proposal that a permanent commission, composed of the Director of Public Welfare, the Director of Public Health and the Superintendent of Public Instruction together with from three to five civilian members to be named by the Governor, be created. The commission to use whatever means that are available to care for the needs of the crippled children of the State of Illinois as revealed by the survey in foregoing summary. It is further recommended that the commission keep a registry of the names of crippled children of the State and that it use whatever means are necessary to keep the same up to date. It is recommended also that in order to supply opportunities for special training the University of Illinois College of Medicine shall immediately organize and equip facilities for the education of Orthopedic Surgeons to care for the physically handicapped and at the same time rehabilitate the more difficult cases.

## Correspondence

### WHEN COMPULSORY HEALTH INSURANCE AGAIN SHOWS ITS HEAD

*To the Editors:* Here is an interesting item for the *Record*, so that we may have it to refer to, later, when *Compulsory Health Insurance* again shows its head. Of course, you know, a Compulsory Health Insurance Bill is introduced every year in the New York State Legislature by Mr. Cuvillier, in the Assembly and, of course, too, he has no difficulty in finding some obliging, ambitious, inexperienced new Senator to introduce a similar Bill in the Senate . . . and, of course, too, the Senators and Assemblymen from our (Kings) County, knowing the attitude of the People's Doctors in the County Medical Society, promptly advise their colleagues of its viciousness and it dies in Committee—nevertheless—its annual introduction puts us on notice that "it is not dead—but sleepeth."

A member of my County Medical Society of Kings met an official of The American Association for Labor Legislation, this summer, while on vacation, and they discussed this subject and Kings County's part in arousing the people *Who Had The Votes* and that official said that Compulsory Health Insurance plans had not been abandoned but that they were marking time *Because Of The Depression*.

*Because Of The Depression?* Yet, if there be any economic merit in Compulsory Health Insurance at all, there never has been and never will be a time, please God, when the People were lower down and more in need of a 'leg up' than these dreadful days—but—you see, because of the very fact that *Economy*, not *Waste* is appealing to the People as imperative, and they are naturally fearsome of schemes which will add to their already heavy burdens . . . When the ordinary, average man; the middle class, whose bowels of compassion would respond to propaganda for the less fortunate are, themselves, suffering, they would have to be shown, and shown clearly that, beyond peradventure of doubt, the propagandist could change human Nature so that the Doctors, whose sympathy and sacrifice they have found to be so satisfyingly *Personal* in these dreadful times, could or would, when imper-

sonalized, panelized, standardized and politicalized, retain the beautiful, dependable, personal sympathy, as friend and Physician, that marks his influence in their homes, today.

The middle class, average man, whose family never knew want, before, and which knows it now . . . The very poor who have had to seek help; . . . the more fortunate who have not needed help, for themselves, but who have sought help for others—all these people *Who Have Votes* that can make or break legislators know now, as they never knew before and as we, their Doctors, could not always drive home to them, try as we might, that there is mighty little sympathy, equity or understanding to be expected from *Bureaucracy*, private or municipal—State or National. . . They have had contact with the superior, class-conscious attaché of these Bureaus and Committees whose magnificence of title is only surpassed by the magnificence of the appointment of their Palatial offices, from which they dispense *Some* of the moneys, contributed by the charitably disposed, but knock the starch out of the morale of the recipient of the largesse they dispense by the humiliating requirements of the well-salaried Directors of these funds.

I know the American people have a good 'forgettery'; I know that Barnum was right,—“The American Public loves to be humbugged, but I believe that this depression, which for distress, suffering, heartaches and humiliation has not been equalled in the history of the world, will make them more attentive to the *Stop! Look! Listen!* signs held out to them by their Doctors than ever before.

Let us keep before their minds, constantly, that it is the prospect of *Jobs* that governs the Propagandists' activity and when conditions are not propitious for *Jobs*, they mark time—waiting, waiting, waiting until it is worth while to dig their hands into the public treasury and the people's pockets, before they begin, again, their Hymn of Welfare, hailing the “Great Good Dawning of the Brotherhood of Man” through *Compulsory Health Insurance* and the Panelization, politicalization and impersonalization of the People's Doctors.

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## Original Articles

### RHEUMATIC HEART DISEASE\*

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Rheumatic heart disease is by far the most important form of cardiac disability in childhood and early adult life. It includes the cardiac damage associated with or following the various expressions of rheumatic fever and that which is represented at a later stage by a mitral stenosis, even though the history of an etiological factor is lacking. The present discussion is particularly concerned with the acute manifestations of the disease.

According to the more recent statistical studies,<sup>1 2 3 4 5</sup> the incidence in the United States ranges from 3.4 to 44 per cent. The former<sup>3</sup> pertains to a series of cases reported from Texas and the latter<sup>5</sup> was recorded from the Rocky Mountain region. In a survey<sup>6</sup> of our cardiac patients at the University of Iowa, covering a period of five years from 1926 to 1931, 27.3 per cent were classified as rheumatic heart disease. Eighty-four per cent either gave a history of rheumatic fever or chorea or both. These patients came from all parts of the state and it is believed that this figure approximates the incidence of this form of heart disease in Iowa.

Reports indicate that the incidence is much higher in the northern than in the southern states. Longcope<sup>7</sup> has reviewed the regional distribution of rheumatic fever and calls attention to the manifestation of the disease in Baltimore. He pointed out that the incidence of rheumatic fever in the hospitals of Baltimore is practically the same as in the hospitals of Boston, but that the character of the disease in his series of cases differ somewhat from that ordinarily observed in the more northern cities of the United States. The more severe forms of arthritis were not common and even the milder degrees of joint manifestations occurred in only a moderate proportion of his cases. An involvement of the heart, however, was demonstrated in 95 per cent of the patients. It was suggested that possibly rheumatic fever might be detected more frequently in the southern states if the

disease were regarded as one primarily of the heart and if it were appreciated that the arthritis is an insignificant feature.

Certain aspects of the pathology deserve emphasis. In the first place, rheumatic fever is a systemic disease.<sup>8</sup> The perivascular reaction with the invasion of the vessel wall is a conspicuous feature of the infection. This not only occurs in the heart, aorta, brain, lungs and about the joints but may be widely distributed throughout the body. VonGlahn and Pappenheimer<sup>6</sup> in a recent study of this problem noted characteristic changes in the vessels of the lungs, aortic valves, kidneys, perirenal and periadrenal tissue, ovaries, testes, pancreas and other organs.

The heart is probably always involved. While this may not be apparent in the beginning it later becomes evident if the infection continues or recurs. In the heart, as elsewhere, the changes in and about the blood vessels are one of the distinctive findings. Aschoff<sup>10</sup> in the description of the lesions which has since come to be known as the Aschoff bodies pointed out that they were regularly in close proximity to the small and medium sized arteries and often involved the vessel wall. Coombs<sup>11</sup> and others have since stressed this aspect of the histological picture and the former in particular believes that the irritation of the endothelial lining of the small vessel is the initial stage in the formation of the periarterial lesion. While the arterial changes more frequently concern the smaller vessels they may also occur in the main branches of the coronary arteries. Perry<sup>12</sup> has recently reported a series of eight consecutive cases of fatal rheumatic carditis in all of which an involvement of the larger arteries was demonstrated. This investigation was suggested by a child with severe rheumatic carditis who, during life, had typical anginal pain, and at necropsy presented rather extensive intimal proliferation of the larger coronary arteries.

The vascular character of the disease indicates that possibly all parts of the heart are invaded to a varying degree. The lesions, however, are usually more numerous in the left ventricle and are situated mainly in the sub-endocardial layers perhaps because of the extensive network of small vessels in this region. They occur particularly about the insertion of the ventricular wall with the fibrinous ring of

\*Oration in Medicine. Meeting of the Illinois State Medical Society, May 18, 1932.

the mitral valve, near the origin of the aorta and in the base of the interventricular septum. Lesions of the right heart are more likely to be found in close proximity to the fibrinous ring of the tricuspid valve. These findings appear to have an important bearing on the frequency with which the valve structures in the above location are concerned and at least suggest that the involvement of the latter is intimately related to the pathological process in the adjacent myocardium.

The mitral valve is the one most commonly involved. The aortic valve comes next in frequency followed in order by the tricuspid and, in rare instances, the pulmonary valve. The tricuspid valve is probably damaged more frequently than generally believed. Libman<sup>13</sup> reported typical rheumatic vegetations of this valve in 66 per cent and Thayer<sup>14</sup> in 44 per cent of their cases. In one of Thayer's cases the endocardial lesions were confined to the right side. Sacks has suggested that the organic insufficiencies and stenosis of the tricuspid valve would probably occur more often were it not for the fact that the endocardial involvement is often confined to a limited area. The damage to the valve structures ultimately results in a combined insufficiency and stenosis in which either effect may predominate. The production of a significant stenosis usually requires years, and the more advanced forms commonly follow the chronic and recurrent types of rheumatic fever in which not infrequently the joint manifestations are lacking.

Recent observations indicate that the endocarditis is secondary to the valvulitis. Coombs<sup>11</sup> states that the valves are thickened even in the earliest stage of the disease. Swift<sup>15</sup> has furnished further convincing evidence in this direction. He studied four cases of rheumatic fever dying within two or two and a half weeks of the onset of the arthritis. Death occurred in three during the first attack and in the fourth during the second attack. A diffuse valvulitis was found even though in two there were grossly no indication of vegetations. In the remaining two the vegetations were limited to a small area. Swift concluded that the primary reaction in rheumatic disease of the valves is that of an interstitial valvulitis, and suggested that the verrucae are usually due to a deposition of thrombi on the portion of the valve where

the vitality of the endothelial and subendothelial layers of the endocardium has been impaired as the result of repeated impact with the contiguous valves. In the past the endocarditis has been emphasized but it would seem that the valvulitis is far more important in the production of the valvular deformity. It is rather difficult to explain the extensive deformity of the valve structures such as in a high grade stenosis on another basis.

The occurrence of auricular lesions is of interest and probably contributes to the later development of auricular fibrillation and possibly to the formation of mural thrombi. These lesions were first identified by MacCallum<sup>16</sup> and, according to the observations of Thayer and VonGlahn, are found in a considerable percentage of their cases. They generally concern the endocardium of the left auricle and usually appear in the form of corrugated or puckered patches of thickened endocardium extending upward from the root of the posterior leaflet of the mitral valve. The area of involvement may be small but is often quite extensive, and in rare instances, as pointed out by Sacks,<sup>8</sup> the entire endocardial surface of the auricle may be affected.

The extent to which the various structures of the heart share in the infection has a significant influence on the course of the cardiac disability. In the more acute and extensive forms of rheumatic heart disease, the damage to the myocardium dominates the picture. Death during the first and second decades is usually primarily dependent on the myocarditis. With an extensive infection, the pericardium is often invaded. According to the necropsy findings recorded by Coombs the pericardium was involved in a very high percentage of those dying during the early stages of the disease. In certain instances the pericarditis, either because of the effusion or through the subsequent formation of adhesions may impose an excessive burden on the heart. The valves are invariably concerned, and in the more chronic and recurring forms of rheumatic fever is often the most conspicuous feature or possibly the only manifestation of the disease. The progressive deformity of the valve may thus overshadow the damage of other cardiac structures. While the changes in either the myocardium or the valves may predominate they are always combined to a varying degree



and may be accompanied by an involvement of the pericardium. There is thus a combination of mechanical factors and intrinsic damage of the myocardium and the extent to which each of these contributes to the cardiac disability varies widely from individual to individual.

The symptoms vary in a remarkable manner, depending on the activity of the infection and the extent of the cardiac involvement. A child may have a mild rheumatic fever for weeks, months, and possibly years accompanied by slowly progressive damage of the heart which can scarcely be detected. In the absence of cardiac manifestations the symptoms continue to be those of a systemic reaction to a low grade infection as evidenced by fatigability, poor appetite, malnutrition and pallor with intervals during which there is a slight elevation of temperature. Other cases show varying degrees of arthritic manifestations ranging from an indefinite leg ache to a frank arthritis. In general the arthritis is more apt to predominate in the older individual and the cardiac damage is less likely to be a conspicuous feature. Recurrent upper respiratory infections, particularly tonsillitis, less often otitis media and mastoiditis or certain infectious diseases such as scarlet fever often precipitates the cardiac involvement. The cardiac involvement is not infrequently the only evidence of a rheumatic infection. In some, the focal expression is that of a chorea.

Symptoms referable to the heart do not ordinarily appear until there is extensive cardiac damage. There is not infrequently, however, a feeling of heaviness or a fleeting twinge of pain in the precordium. Occasionally the pain is more severe and referred to the left shoulder, the left axilla or even down the inner side of the left arm and may thus resemble that of angina pectoris. Swift and Hitchcock<sup>17</sup> have made a careful study of the subjective sensations over the precordial region in rheumatic fever and found that a fairly large percentage of their cases experienced discomfort at some time during the course of the disease. The discomfort was generally associated with a demonstrable involvement of the heart and the frequency with which it occurred was roughly proportional to the intensity of the rheumatic infection. In a few cases they observed a recurring pain in the left shoulder which at first

was ascribed to a persistent inflammation of the joint and finally attributed to the diseased heart. In view of the involvement of the coronary arteries and the possible invasion of the aorta and the pericardium, it is not surprising that individuals with a rheumatic heart disease have precordial discomfort or even anginal pain. At times the patient is conscious of the heart because of premature contraction or other forms of abnormal mechanism. In some the palpitation is a part of the effort syndrome that may accompany any infection.

Finally as the heart becomes more extensively damaged and the range of the functional capacity is gradually reduced, shortness of breath is induced by exercise which has ordinarily not caused discomfort. This is followed later by more evident dyspnea and other signs of cardiac failure. The cardiac failure may occasionally occur within a few days or weeks in those with an extensive invasion of the myocardium. In some, the picture is complicated or dominated by a pericarditis.

The objective signs depend on the stage and the extent of the cardiac damage. In the early stages they may be so indefinite that the cardiac involvement is overlooked. The systolic murmur at the apex is usually the first feature to direct attention to the heart. In the beginning this is largely dependent on the dilation of the auriculo-ventricular ring. The murmur is soft and blowing in character, generally confined to the apex and usually heard best with the individual in the recumbent position or on the left side. Later it changes in quality and is evident over a larger area, particularly to the left towards the axilla and perhaps posteriorly in the left interseapular region. The subsequent alteration in the character, especially the harsh aspect, is due to the changes in the structure of the valves. The accelerated cardiac rate and possibly an elevation of the temperature out of proportion to the arthritis or other causes and a demonstrable increase in the area of cardiac dullness are the most important findings. Disturbance in cardiac rhythm, more particularly premature contractions are rather frequently encountered and may be among the earliest manifestations of a cardiac infection. When the heart is more extensively involved, the systolic murmur is more conspicuous and the cardiac enlargement is at once apparent.

The cardiac sounds often undergo a change in quality and a canter rhythm is frequently noted. In certain instances a pericardial rub is discovered or perhaps the findings are altered by the development of an effusion.

The electrocardiogram furnishes important information and may be the only means of demonstrating an involvement of the heart. Characteristic alterations in the curve may occur long before the appearance of physical signs. This method of examination may thus be very helpful in detecting the initial invasion of the heart or recurrent infection and serves as guide in the treatment. The character of the changes are usually classified under three headings: 1. irregularities in the cardiac rhythm; 2. an increase in the duration of the P-R interval, and 3, alterations in the QRST complexes. Disturbance in cardiac rhythm, especially premature contractions, are common and significant from the standpoint of the involvement of the heart, but are not so important in this connection since they are usually identified by the routine methods of examination. A delayed conduction, unless it progresses to the stage with dropped beats, however, is seldom diagnosed except by instrumental means. It is an indication of cardiac damage, and while it occasionally occurs during the course of various acute infections, is far more common in rheumatic fever. The incidence of this finding in rheumatic fever, according to various reports,<sup>18</sup> ranges from 30 to 40 per cent.

In 1924 Cohn and Swift<sup>19</sup> recorded alterations in the QRS group; the R-T segment and the T deflection. These findings have since been confirmed by different observers. They are generally transient and while less conspicuous, resemble the changes in the electrocardiogram observed following the experimental ligation of the branches of the coronary arteries in the dog or coronary occlusion in man. Through the combined electrocardiographic evidence, Cohn and Swift demonstrated a myocardial involvement in 94 per cent of their cases of rheumatic fever. The findings of Rothschild, Sacks and Libman,<sup>2</sup> Reid and Kenway<sup>18</sup> and others are in accord with these results.

Rheumatic heart disease in its early manifestation is essentially a disease of childhood and early adult life. In the study of Wilson,

Lingg, and Croxford, covering a period of ten years of 413 cases with a history of rheumatic fever, the infection began to appear during the preschool age. The incidence rapidly increases, reaching the highest peak between seven and eight years of age and then gradually declines. These figures are in general accord with other statistics. In some instances the highest incidence was reached at a slightly older age, but it is important to bear in mind that 50 per cent of the children observed by Wilson, Lingg and Croxford<sup>21</sup> came under observation within a year of the onset of the rheumatic infection.

The course of the disease is determined by the extent and duration of the infection. It is possible that the heart may recover from a minor involvement without later presenting evidence of structural changes. The disappearance of the murmur in certain instances following acute infection may perhaps be explained on this basis. The initial cardiac damage is frequently not recognized and the resulting structural alterations are not discovered until years later and then perhaps accidentally. Some may never have presented a frank arthritis, or at best, not more than an occasional twinge in leg or joint. The majority of these patients sooner or later develop symptoms and finally die from cardiac failure. Others may perhaps attain the usual life expectancy and never suffer any particular inconvenience from the heart. In children in whom the heart is extensively damaged by the initial infection, the prognosis is not only poor from the standpoint of the more remote future, but there may be grave concern regarding the immediate outcome. However, they generally recover at least temporarily from the first attack, but may die within a few years or during early adult life either from subsequent cardiac damage or as a result of the handicap imposed by the valve lesion, but more often from a combination of these factors.

The repeated insults to the heart from recurrence or exacerbation of the infection is one of the most important factors in the progression of the cardiac disability. New foci appear in the myocardium, valves not previously concerned may be involved, possibly the pericardium invaded and in the meantime there is a progressive contracture and deformity of the valve structures already damaged. The observation of Wilson, Lingg and Croxford indicate



that the incidence of the recurrence of the infection is higher in children who contract the disease before seven years of age and show that the degree of cardiac involvement is closely related to the number of recurrences. These findings are particularly impressive because of the frequent observations and the duration of the study.

The diagnosis is at once apparent in those in whom definite structural changes appear in the heart during or subsequent to other manifestations of rheumatic fever. In some, particularly those with indefinite cardiac findings and in whom other possible manifestations of a rheumatic infection are either lacking or questionable, the diagnosis is extremely difficult and often not possible until after a period of observation. Attention may have been directed to the heart through the discovery of a murmur in examining a child because of general ill health or during or after an upper respiratory infection or some of the acute infectious diseases. The murmur alone, except when diastolic in time is not of any particular significance unless accompanied by an increase in the size of the heart. Other signs, especially canter rhythm are invariably indicative of a damaged myocardium. Prolongation of the P-R intervals or an alteration in the QRST complexes of the electrocardiogram may be the deciding factors in the diagnosis. In the more chronic and insidious forms of rheumatic fever, a detailed history and careful survey of all possible evidences of the disease is of utmost importance.

The recurrence or exacerbation of a cardiac infection is likewise often difficult to establish. This is particularly true in the chronic forms of rheumatic fever. Here again the history and the general condition of the child are extremely important. There is not likely to be any appreciable change in an already existing murmur and the slight increase in the size of the heart may not be demonstrable except possibly by means of a teleoroentgenogram. The appearance of a new murmur, particularly the diastolic murmur of aortic insufficiency, a pericardial friction rub, even though transient, or the demonstration of electrocardiographic alterations confirms the diagnosis. It is further more difficult to determine when the infection has disappeared. Shapiro<sup>22</sup> has recently recorded electrocardiographic evidence of an active car-

diac infection in at least 60 per cent of 119 school children following apparently complete recovery from the disease.

In young adults it is occasionally necessary to differentiate between a recurrence of a rheumatic attack and subacute bacterial endocarditis. The clinical appearance, from the standpoint of the evidence of an infection and possible joint manifestation may, in certain instances, be quite similar. The embolic phenomena, a palpable spleen, and the isolation of a streptococcus viridans from the blood stream usually decides the question. It should be remembered, however, that emboli are occasionally dislodged in rheumatic heart disease even in the absence of auricular fibrillation, and that in rare instances, as pointed out by Thayer,<sup>23</sup> a non-hemolytic streptococcus may be cultivated from the blood stream. There are thus a few instances in which a differentiation may be extremely difficult and not possible without a careful consideration of all evidence.

Even though the etiological agent responsible for rheumatic fever is not known and our knowledge is still limited concerning many of the various factors which influence the onset of the infection, yet it is believed that much may be accomplished towards reducing the incidence of the disease and curtailing the extent of the cardiac damage. It is generally agreed that there is a close relation between rheumatic fever and upper respiratory infections. Swift particularly emphasizes this relationship. A child who has repeated attacks of sore throat or tonsillitis and the various associated or complicating conditions such as sinusitis, otitis media and mastoiditis is constantly in danger of contracting rheumatic fever. Fortunately these conditions in a child are usually very amenable to surgical treatment and it is believed that if care is taken to eliminate them before they are firmly established the incidence of rheumatic heart disease will be diminished. It is also important to protect the child against various infectious diseases such as scarlet fever, diphtheria, measles and whooping cough that especially involve the upper respiratory tract. Adequate supervision of the diet, proper clothing, plenty of sleep, exercise in the fresh air, sunshine and the administration of cod liver oil during the winter months are vital factors from the standpoint of the general health, and

help to reduce the susceptibility to infections. Every upper respiratory infection in a child should be regarded as a potential cause of heart disease. If, in addition to the above precautions, the heart is carefully observed during and subsequent to upper respiratory infections, a possible cardiac involvement may be recognized at an early stage and the progress very likely curtailed by adequate rest.

During the active stage of cardiac infection, rest in bed, relaxation, sleep, a simple well balanced diet and careful nursing are by far the most important parts of the treatment. The bed rest should be continued until all evidence of the rheumatic infection has subsided and the general health is restored, as indicated by the disappearance of joint manifestations, subcutaneous nodules, fever, leucocytosis and secondary anemia and reduction in the pulse rate and restoration of body weight. The important part played by adequate rest in curtailing the cardiac damage cannot be over-emphasized. In patients with acute joint symptoms, the administration of salicylates for the control of the pain is indicated. They also help to combat the pain of pericarditis, although the latter may be severe enough to require codein or morphine. The long continued use of salicylates has been suggested in the treatment of the cardiac infections, but it is rather doubtful that it influences the course of the condition to any significant extent. Iron preparations may be employed to advantage for the secondary anemia. Digitalis is not indicated unless there is cardiac failure.

The after treatment is concerned with gradually getting the individual on his feet and protecting him against a recurrence of the infection. The exercise should be carefully supervised, particularly in patients with extensive involvement of the heart. This is followed by a systematic and thorough removal of all foci of infection. Tonsillectomy can hardly be expected to have the desired result unless it is thoroughly and completely done. The operation should include removal of adenoids and other possibly infected clumps of lymphoid tissue about the naso-pharynx. Even though the above procedure may be carried out, it is not surprising that the infection recurs since the door is already open and the system has been invaded by the infection. The subject should be pro-

tected thereafter against upper respiratory infections and other factors which may favor the return of the infection and carefully observed for further possible evidence of the disease and damage to the heart. Finally, the physician should encourage the child's parents to educate him so that he may be able to gain a livelihood and yet live within his physical limitations.

#### REFERENCES

1. Wyckoff, J., and Lingg, C.: Statistical studies bearing on problems of classification of heart disease; etiology in organic heart disease. *Amer. Heart Jour.* 1:446, 1926.
2. Wood, J. E., Jones, T. S., and Kimbrough, R. D.: Etiology of heart disease; clinical study of 623 cases with observations on race and climate. *Amer. Jour. Med. Sci.* 172:185, 1926.
3. Stone, C. T. and Vanzant, F. R.: Heart disease as seen in southern clinic; clinical and pathologic survey. *Jour. A. M. A.* 89:1423, 1927.
4. White, P. D. and Jones, T. D.: Heart disease and disorders in New England. *Amer. Heart Jour.* 3:302, 1928.
5. Viko, L. E.: Heart disease in the Rocky Mountain region. *Amer. Heart Jour.* 6:264, 1930.
6. Rathe, H. W. and Paul, W. D.: Statistical Review of heart disease at the State University of Iowa. (In print.)
7. Longcope, W. T.: Variations in manifestations of rheumatic fever in relation to climate. *Annals Int. Med.* 1931, 5, 401.
8. Sacks, B.: Pathology of rheumatic fever; critical review. *Amer. Heart Jour.* 1926, 1, 750.
9. VonGlahn, W. C., Pappenheimer, A. M.: Specific lesions of peripheral blood vessels in rheumatism. *Amer. Jour. Path.* 1926, 11, 235.
10. Aschoff, L.: Zur myocarditisfrage. *Verhandl. d. deutsch. path. gesellschaft*, 1904, 8, 46.
11. Coomhs, C. F.: Rheumatic heart disease. Wm. Wood & Co., New York, 1924.
12. Perry, C. B.: The main branches of the coronary arteries in acute rheumatic condition. *Quart. Jour. Med.* 1929, 23, 241.
13. Lihman, E.: Characterization of various forms of endocarditis. *J. A. M. A.* 1923, 80, 813.
14. Thayer, W. S.: Notes on acute rheumatic disease of the heart. *Bul. Johns Hopkins Hosp.* 1925, 36, 99.
15. Swift, H. F.: Rheumatic fever. *Amer. Jour. Med. Sci.* 1925, 170, 631.
16. MacCallum, W. G.: *Bul. Johns Hopkins Hosp.* 1924, 35, 329.
17. Swift, H. F. and Hitchcock, C. H.: Cardiac pain in rheumatic fever. *Jour. A. M. A.*, 1928, 90, 678.
18. Reid, W. D. and Kenway, Florence L.: The value of the electrocardiogram in acute rheumatic fever. *New Eng. Jour. Med.* 1928, 198, 177.
19. Cohn, A. E. and Swift, H. F.: Electrocardiographic evidence of myocardial involvement in rheumatic fever. *Jour. Exper. Med.*, 1924, 39, 1.
20. Rothschild, M. A., Sacks, B. and Lihman, E.: The disturbance of the cardiac mechanism in subacute bacterial endocarditis and rheumatic fever. *Amer. Heart Jour.* 1927, 2, 356.



21. Wilson, May G., Lingg, Claire, and Croxford, Geneva: Heart disease in children. *Amer. Heart Jour.* 1928, 4, 164.

22. Shapiro, M. J.: Electrocardiographic changes in quiescent rheumatic disease in children and young adults. *Amer. Heart Jour.* 1930, 5, 504.

23. Thayer, W. S.: Observations on rheumatic pancarditis and infective endocarditis. *Annals Int. Med.* 1931, 5, 247.

## LUMBAR SYMPATHETIC RAMISECTION FOR RELIEF OF PAIN DUE TO CARCINOMA OF UTERUS\*

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Sympathetic ganglionectomy and sympathetic ramisection have for a long time been performed in attempting to alleviate pain in instances where more palliative measures have failed. In 1898 Jaboulay,<sup>1</sup> cited by Cotte and Dechaume,<sup>2</sup> in attempting to alleviate certain neurologic symptoms in the pelvic region caused by the disturbance of function of the sympathetic nervous system, rather than that due to disorder of the uterus and adenexia, loosened the rectum from the ventral side of the sacrum through a transverse sacral incision so as to reach the coxygeal nerves 10 cm. behind the anus. The sacral ganglia and other sacral nerves of the sympathetic system were cut on the left side and completely excised on the right side for a distance of about 3 cm. There was a resultant retention of urine for 48 hours (probably due to disturbance of the para-sympathetic (sacral) portion of the autonomic nervous system). The patient subsequently made a complete recovery. In a later instance Jaboulay, instead of cutting the nerves, loosened the upper part of the rectum thereby simply tearing the branches from the sacral para-sympathetic plexus. He again noticed an immediate urinary retention but pain was relieved.

Rochet,<sup>3</sup> cited by Cotte and Dechaume,<sup>2</sup> removed the hypogastric ganglia from two patients suffering with severe pain due to renal tuberculosis. The pain was immediately relieved but with a subsequent urinary retention. Although they obtained their desired result it was at the price of the bladder paralysis.

Cotte and Dechaume,<sup>2</sup> in 1925, believed that the excision of the ganglia was undesirable and therefore performed a peri-arterial sympathectomy of the hypogastric artery with a pre-

sacral sympathetic ramisection. Through a Pfannenstiell's incision they made an incision into the posterior peritoneum at the point of bifurcation of the aorta where the iliac vessels cross the promontory of sacrum turning back the internal lip of the peritoneum with the adherent uterus, removing the adventitia of the hypogastric arteries for a distance of 2 to 3 cm. They quote Leriche, who had, in several instances, freed the arteries above the bifurcation of the aorta. In six instances they experienced invariable rapid recovery, but the favorable results did not always persist.

Bittmann,<sup>4</sup> in 1926, reported nine gynecological cases in which he decorticated the abdominal aorta and the iliac arteries for the relief of pain with complete success in each case. Pieri,<sup>5</sup> in 1928, reported thirty-four cases in which he carried out ramisympathectomy for the relief of pain with very favorable results. He believes that ganglionectomy is not necessary and of no particular advantage over ramisection. Barnard and Theodoresco,<sup>6</sup> in 1928, reported section of pelvic sympathetic nerves in eight cases of advanced pelvic carcinoma with very marked success. Fontaine and Herrmann<sup>7</sup> have recently shown the advantages of pelvic sympathectomy performed for the relief of intolerable pain due to pelvic neoplasms. They found that disturbances of micturation, paralysis of the bladder and ascending urinary infections rarely occurred in their experience and are convinced that pelvic sympathectomy is preferable to cordotomy provided the pain is not due to metastatic foci in the vertebrae.

*Anatomy*—The anatomy of the hypogastric plexus is variable but usually is a plexiform network of nerve fibers connecting the celiac and pelvic plexuses. These nerves lie upon the anterior and lateral surfaces of the abdominal aorta extending down over the bifurcation of the aorta along the iliac arteries and along the promontory of the sacrum. Continuations of these fibers along both sides of the rectum form the pelvic plexuses. They receive, in addition to fibers from the sympathetic trunks above, visceral rami of the second, third and fourth sacral nerves. Branches from these pelvic plexuses, containing both sympathetic and para-sympathetic nerves, supply the pelvic organs. This will no doubt account for the paralysis of the bladder in Jaboulay's work where he loos-

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ened the rectum from the ventral side of the sacrum. This disturbed the sacral (para-sympathetic) fibers leaving the corresponding and antagonistic sympathetic nerves unopposed.

Impulses conveyed through the hypogastric nerves exert a vasoconstrictor action and impulses conveyed through the pelvic nerves a vasodilator effect. The musculature of the bladder is known to contract in response to stimulation of the pelvic nerves and relaxes in response to stimulation of the hypogastric nerves. Sympathetic and para-sympathetic nerves maintain in this way a functional balance. The question of crossed innervation is also to be considered; for example, stimulation of the pelvic nerves elicits contraction of the detrusor muscle and relaxation of the sphincter vesicae. On the contrary, stimulation of the hypogastric nerves elicit contraction of the sphincter vesicae and relaxation of the detrusor muscle. It is probable, however, that severing the hypogastric nerves (sympathetic) will have no effect upon the detrusor muscle but merely cause relaxation of the sphincter vesicae and not a generalized paralysis of the bladder musculature.

The action of various drugs largely confirms the very definite functional relationship that is believed to exist between the sympathetic and para-sympathetic nerves. Adrenalin stimulates the sympathetic nerves while pilocarpin, muscarin, physostigmin, and others stimulate the para-sympathetic nerves. Atropine seems to paralyze the terminal portions of the para-sympathetic nerves.

In general the sympathetic and para-sympathetic nerve supply of the bladder is mutually antagonistic. Para-sympathetic stimulation results in functional activity of the organ while stimulation of the sympathetic nerves results in inhibition of the organ. Therefore, severing the hypogastric nerves alone should not result in paralysis of the bladder with urinary retention. It is imperative that the para-sympathetic nerve supply of the urinary bladder is not disturbed in attempting surgical means to relieve pain due to pathology in the uterus. For a complete and comprehensive study of the nervous mechanism of micturition reference is made to a more detailed work.<sup>8</sup>

The uterus obtains its nerve supply from the uterine plexus which is a continuation of the

hypogastric and aortic plexuses. These fibers extend along the aorta and down the iliac vessels entering the broad ligament and then into the lateral side of the uterus, together with fibers from the second, third and fourth sacral sympathetic trunk, the tenth, eleventh and twelfth thoracic and first lumbar nerves. The uterus therefore has both sympathetic and para-sympathetic fibers. The afferent fibers are supplied from the tenth thoracic to the first lumbar and the second and fourth sacral nerves.

The intrinsic nerve supply is of no particular importance here except for the fact that there is an abundance of nerve fibers along the blood vessels in the musculature but it is doubtful whether they reach the mucosa. Inasmuch as the cause of the pain in carcinoma of the uterus is not definitely understood it is presumed, however, that 1. the encroachment upon the nerves by the carcinomatous growth, 2. the excessive contraction of the musculature, 3. the change in the character of the blood supply or 4. local physico-chemical toxic changes are probable causes. Lumbar ramisection undoubtedly alters most of these factors, especially the second and third, in addition to interrupting the afferent conduction pathways.

#### CASE HISTORY

Mrs. A. S., aged 50, entered St. Joseph's Hospital, Chicago, January 27, 1931, complaining of pains in pelvic region and pain on defecation.

Onset and Course: following an operation upon the cervix five years previous to this time patient had remained comparatively free from symptoms except for pain that developed in the rectum. She had excruciating pain on defecation. Marked constipation. She had been taking morphine for relief of pain. She complained bitterly of pain about rectum. No vaginal bleeding.

Past Medical History: Usual childhood diseases.

Past Surgical History: Trachelorrhaphy five years ago.

Family History: Negative.

Physical Examination: Abdomen—distended. Definite evidences of weight loss; skin doughy. Evidence of extensive x-ray treatment over lower abdomen. Lower portion more full than upper; abdomen highly tympanitic. No visible peristalsis and none could be elicited. No tenderness in epigastrium or over gall bladder. Cecum distended with gas and somewhat tender; marked distention of the sigmoid. Linea albae marked. No rigidity.

Pelvic Examination—marked infiltration about introitus extending along vaginal wall posteriorly and anteriorly; somewhat tender. Cervix was found to be a large, stony hard, nodular, immovable mass. There was a foul smelling vaginal discharge.



Rectal Examination—revealed a constriction of the upper portion of the rectum posteriorly to the immovable mass. No bleeding.

Laboratory Findings: Urine contained trace of albumin and pus cells. Blood: hemoglobin 55%; erythrocytes 3,200,000; leucocytes 20,800. Wassermann negative. Coagulation time  $4\frac{1}{2}$  minutes. Blood Pressure 104/70.

Pre-Operative Diagnosis: Inoperable carcinoma of cervix-uteri.

Operation: January 28th Anesthesia—spinal, 250 mg. novocaine. Pulse before anesthesia 92; during anesthesia —92-80. Abdomen relaxed. A midline incision made from umbilicus to symphysis. There was a stony-hard, nodular enlargement of the lower uterine segment densely adherent to the urinary bladder and rectum and obliterating the posterior cul de sac. A crescentic incision was made in the loose posterior peritoneum beginning from the left of the aorta about 3 cm. below the origin of the inferior mesenteric artery and extending downward and to the patient's right beyond the vena cava to the middle of the sacral promontory. This gave a wide exposure of the lower portion of the aorta, the bifurcation of the aorta and the proximal portions of the common iliac arteries. All visible nerve fibers of the hypogastric and iliac plexuses were resected. The peritoneum was repaired with a single plain fine catgut suture and the abdomen closed. A small nodule was removed from the retroperitoneal space and sent to the laboratory for biological examination.

Surgical Diagnosis: Inoperable carcinoma of uterus.

Pathological Diagnosis: Squamous cell carcinoma.

Post-Operative Notes: Patient had experienced absolutely no pain subsequent to the operation. Four days after the operation a slight vaginal bleeding occurred, probably due to the resultant vaso-dilatation within the uterus. The bleeding continued for a few hours and stopped spontaneously. The relief of the pain was undoubtedly due to the interruption of the afferent conduction pathways following the resection of the hypogastric plexus. At no time was there any disturbance of urinary bladder function.

Patient discharged from the hospital February 24th.

Patient died April 15, 1931 without recurrence of pain.

### SUMMARY

Any procedure whereby patients with inoperable carcinoma of the uterus can be relieved of their pain should be resorted to and, unless there exist definite contra-indications for any surgical procedures, lumbar sympathetic ramisection may be advantageously done. Lumbar sympathetic ramisection permanently and completely relieved pain in this instance without urinary retention. The trans-abdominal route seems more applicable as advocated by Kanavel,<sup>9</sup> Adson,<sup>10</sup> and others because of the fact that the operation can be performed with more ease, less shock, and a bilateral sympathectomy may be done, if desired. Although peri-arterial sympathectomy

of the aorta has been done for the relief of pain in inoperable carcinoma<sup>11</sup> it would seem reasonable to suppose that, because of the comparative greater risk involved, ramisection would be the more safe procedure. The possibility of infection following peri-arterial sympathectomy of the aorta must be considered and such an infection may be disastrous. Peri-arterial sympathectomy of the aorta would, of course, be contra-indicated in the presence of sclerotic changes. Although Cotte and Dechaume have done their type of operation in pelvic neuralgia, vaginismus, persistent dysmenorrhea, uterine hypoplasia with oligomenorrhea, metrorrhagia and clitoris crisis with genital hyperexcitability, other measures may perhaps be advantageously tried in such instances before resorting to surgery.

### BIBLIOGRAPHY

1. Jaboulay: Treatment of Neuralgia of the Pelvic Region Through Paralysis of the Sacral Sympathetic Nerve. *Lyon Medical*, January, 1899.
2. Cotte and Dechaume: Periarterial Sympathectomy of the Hypogastric Nerves: Section of Iliac (Presacral) Nerves. *Journal de Chirurgie*, Vol. 25, p. 653, 1925.
3. Rochet and Latarjet: Study of the Mode of Approach to the Hypogastric Plexus and Hypogastric Ganglion. *Lyon Chirurgial*, December 1, 1913.
4. Bittmann: Periarterial Sympathectomy for Pains in the Lumbar Region. *Lyon Chirurgial*, 22, p. 757, 1926.
5. Pieri: Treatment of Pain Syndromes of Viscera. *Arch. Ital., di Chir.*, 20, p. 587-540, 1928.
6. Barnard and Theodoresco: Resection of the Presacral Nerves. *Journal de Chirurgie*, 31, p. 340-353, 1928.
7. Fontaine and Herrmann: Clinical and Experimental Basis for Surgery of the Pelvic Sympathetic Nerves in Gynecology. *S. G. & O.*, Vol. LIV, no. 2, p. 133-163, February, 1932.
8. Kuntz: Autonomic Nervous System. Lea and Febiger, Philadelphia, 1929, p. 283.
9. Kanavel and Davis: The Effect of Sympathectomy on Spastic Paralysis of the Extremities. *Jour. A. M. A.*, 86:1890, June 19, 1926.
10. Adson and Rowntree: The Surgical Indications for Sympathetic Ganglionectomy and Trunk Resection in the Treatment of Chronic Arthritis. *S. G. & O.*, no. 1A, p. 204-215, January, 1930.
11. Leriche: Sedation, a l'Aide de la Sympathectomie Peri-Aortique et Peri-Iliaque, des Douleurs Provoquees par les Cancers Abdominaux Inoperables. *Lyon Chirurgial*, 22:701-702, 1925.

### RIGHT SIDED AORTA.—REPORT OF A CASE\*

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I will present the roentgenological findings in a case of right sided aorta. Practically all cases of right sided aorta present no clinical findings referable to the anomaly, consequently, post mortem and roentgenological findings are

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our only means of diagnosis. It can readily be seen, therefore, that because of the little clinical significance of these conditions, post mortem diagnosis is the most common and the frequency of this anomaly is problematical.

Brigham in the dissection of fourteen hundred cadavers found one right aorta while Sprong and Cutler reported one case in the dissection of two hundred and twenty-three cadavers.

Abbott, in the analysis of one thousand cases of congenital cardiac disease, reported fourteen

tolie murmur, and three with an accentuated second sound.

In the roentgen literature, I found the following cases of right sided aorta: Mohr, 2 cases; Assman, 1; Saupe, 2; Renander, 1; Arkin, 3; Hammer, 1; Loeweneck, 1; Herzog and Firnbacher, 1; Grossman and Meller, 1; Biederman, 7. In a more recent paper, which has not been published to date, Arkin reports six cases.

Sprong and Cutler classify cases of right aorta into the following groups: 1. Situs in-



Fig. 1. Aortic summit on the right side. Esophagus displaced to left.



Fig. 2. Aorta behind the esophagus. Esophagus displaced anteriorly.

cases of right aorta. The maximum age was sixty-one years, the minimum age was fetal, while the mean age was seventeen years. No definite ratio of the presence in males and females can be determined. Post mortem findings with reference to the cardiovascular system showed that five had a patent ductus arteriosus, two had a defective interauricular septum and two a defective interventricular septum. There was hypertrophy of the right auricle in two cases, of the right ventricle in three and of the left ventricle in two. Associated anomalies were present in the heart in two cases, in the vessels in fourteen and elsewhere in four cases. The personal history in Abbott's fourteen cases was negative. There were two cases showing cyanosis and dyspnea. Clinically there were no cases with cardiac thrills: one case with a sys-

versus viscerum. 2. Double aorta. 3. Right aorta with the left carotid, right carotid, right subclavian and left subclavian as branches. 4. Right aorta with left innominate, right carotid and right subclavian as branches.

For purposes of brevity the first group will not be considered in this article.

In the study of fifteen cases of double aorta, they found with slight variation, that the ascending aorta arched slightly to the right and bifurcated to form a large right and a smaller left arch. The right arch passed backward over the right bronchus and to the left behind the esophagus. The left arch took a course in front and to the left of the trachea, and behind and to the left of the esophagus, it united with the right arch to form the descending aorta. The right carotid and subclavian were branches of



the right arch while the left carotid and subclavian were branches of the left.

Arkin described very completely, two cases of persistent right aorta with partial persistence of the left aortic arch. These cases are a variation of the double aorta group. It has been upon Arkin's detailed post mortem, embryological and roentgenological descriptions that I have been able to interpret my case.

The third group, with twenty-six cases, was found by Sprong and Cutler to be the most common. The course of the right aorta was backward over the right bronchus. The left carotid, right carotid, right subclavian and left subclavian, which ran to the left behind the esophagus, were branches. There was a union of the ligamentum arteriosum and left subclavian. As a variation, a blind pouch may form from the upper part of the descending aorta behind the esophagus and from this pouch the left subclavian may arise. I believe that the case I will present can be classified in this group.

It is the fourth group in which most of the associated anomalies and defects of the heart and vessels are found. There is a symmetrical inversion of the aorta and its branches.

In following the development of the cardiac vessels, the anomalies can be more clearly explained. In the human embryo of 5 m.m. six aortic arches are present on each side. At a very early period, some of the aortic arches disappear and some become portions of the arterial trunks of the heart.

The first and second arches atrophy and disappear. From the third arch on each side the proximal part of the internal carotid artery is formed, while the distal part of the internal carotid comes from a continuation cranially to the third arch of the dorsal aortic root. The proximal part of the external carotid artery is a continuation of the ventral aortic root cranially to the third arch. The ventral aortic root between the third and fourth arches forms the common carotid artery. The dorsal aortic root between the third and fourth arches disappears.

The arch of the aorta develops from the fourth aortic arch on the left side and continues caudally into the dorsal aorta.

From the fourth arch on the right side, the proximal portion of the subclavian artery develops.

The third, fourth, fifth and sixth arches leave the ventral aortic trunk as a single vessel

and from this develops the innominate artery and its branches, the common carotid and the right subclavian.

The rudimentary fifth aortic arch disappears early.

A branch from the sixth arch enters the lung on both sides. That part of the sixth arch on the right side between the branch that enters the lung and the dorsal aortic root disappears. The portion of the right dorsal root, between the subclavian artery, and the original bifurcation of the dorsal aorta disappears. The ductus Botalli, which remains until birth, develops from the sixth arch on the left side.

In the case of double aorta, which is normal in reptiles, the fourth aortic arch on both sides persists or the right fourth may remain while the left arch may only partially remain.

Right sided aorta is due to a persistence of the right aortic arch and is the condition found in birds. The persistence or disappearance of the arches, decides the type of anomaly to be found. An explanation of the factors governing the persistence or disappearance of the embryonic arches is advanced by Congdon and Wang. Comparing the development of the arches in the chick and the pig, they found that in the chick there is a greater cervical flexure and a greater pulmonary trunk displacement and consequently, the left aortic arch is compressed between the pulmonary artery and the anterior body wall and is obliterated. This is not the case in the pig, where the direction of the flow of blood is more to the right, and therefore the right arch persists.

It may be for this same reason that in man, mechanical factors may determine whether the right or left arch remains or to what degree they persist.

H. K. a white female, aged 31, entered Ravenswood Hospital complaining of "aching pain" in the entire abdomen of several days duration, headache, loss of appetite, irritability and palpitation of the heart. The complaints dated from a normal delivery four months previous to entrance into the hospital. Past history of measles, whooping cough, and pneumonia three times. Further history was essentially negative. There was no cough, no dyspnea, and no dysphagia. The physical findings were entirely negative. There were no cardiac thrills, murmurs or cardiac enlargement. The fluoroscopic and radiographic examination of the chest revealed the following: (Figure 1.) In the posterior anterior position the pulsating aortic summit on the left was absent. There was a pulsating arching shadow on the right side just below the right sternoclavicular

joint and extending to the right of the spine. Extending downward along the right side of the spine, a sharply outlined shadow was present. The esophagus, filled with barium, presented a semi-circular depression on its right border at the level of the right pulsating shadow. From this point downward the esophagus was displaced to the left. (Figure 2.) In the right anterior oblique position, a large arching and pulsating shadow could be seen extending from the base of the heart over the right bronchus and behind the esophagus. At this level, which corresponded to the level of the pulsating shadow seen in the posterior anterior position, the esophagus was displaced forward and there was a semi-circular depression on the posterior wall. Arkin showed a smaller circular shadow within this posterior shadow in his cases of right sided aorta with partial persistence of the left aortic arch. No such shadow was seen in any position in this case.

From the above findings, I believe I can conclude that this is a case of right sided aorta with a course over the right bronchus, behind the esophagus and downward to the right of the esophagus.

#### BIBLIOGRAPHY

- Brigham: Ohio State Med. Jour. 1922, Vol. 18, p. 484.  
 Sprong & Cutler: Anat. Record. 1930, 45, 365.  
 M. E. Abbott: Nelson Loose Leaf Medicine. Vol. 4, p. 228-259.  
 Mohr: Dtsch. Z. Nervenheilk. 1913, Bd. 47 & 48, 371.  
 Assman: Klinische Röntgendiagnostik.  
 Saupe: Fortschr. Röntgenstr. 1925, Bd. 33, 740.  
 Renander: Acta radiol. 1926, Vol. 7, 298.  
 Arkin: Wien. Arch. inn. Med. 1926, Bd. 12, 385.  
 Hammer: Fortschr. Röntgenstr. 1926, Bd. 34, 517.  
 Loeweneck: Fortschr. Röntgenstr. 1927, Bd. 35, 1230.  
 Herzog & Firnbacker: Fortschr. Röntgenstr. 1927, Bd. 35, 1236.  
 Grossmann, & Meller: Fortschr. Röntgenstr. 1928, Bd. 38, 1120.  
 Biedermann: Fortschr. Röntgenstr. 1931, Bd. 43, 168.  
 Congdon & Wang: Am. Jour. Anat. 1926, Vol. 37, p. 499-520.  
 Kohler: Röntgenology, Wm. Wood, 1929.

#### DISCUSSION

Dr. H. K. Scatliff, Chicago: I believe that this is a very well presented case of Dr. Jenkinson's. I happened to see one of these cases in which the right-side arch was very much like the one Dr. Jenkinson described. The case I saw also had a four-plus Wassermann. The Clinician was inclined to believe that it was the result of syphilis. An autopsy was done later and the findings were brought out, and they were much the same as Dr. Jenkinson speaks of.

I think that it is well to bring this subject to the attention of everyone.

#### NEPHROSIS

##### With Report of a Case\*

WARREN PEARCE, M. D., F. A. C. P.

QUINCY, ILL.

Custom dictates that the Chairman of this Section occupy a place on the program at the annual meeting and he is permitted to choose his subject. In the past there has been a great variation in the subject matter of these ad-

dresses. Upon some occasions the time has been devoted to an inventory of our accomplishments or a forecast of what the future holds in store for Internal Medicine. In other instances the subject has been that of some phase of medicine in which the speaker was particularly interested. I have elected to forego the oft-times boring inventory and prophecy, fearing that any forecast of mine as to the future of medicine would be as valueless as that of many present day financial prophets. I desire to invite your attention to the subject of nephrosis and to report a case that has some interesting relations.

A perusal of the literature cannot fail to impress one with the fact that there is a group of cases, fairly common in children but rare in adults, in which symptoms suggesting a non-surgical kidney disease are present but in which the clinical picture differs greatly from that of nephritis and in which the treatment is, in many respects, the opposite of that applicable to nephritis. Although there is not unanimity of opinion regarding the clinical identity of nephrosis, the number of clinicians who accept it as a clinical entity is constantly growing and it would seem to an unbiased observer that the evidence, clinical and anatomical, is sufficient to prove its existence.

There can be no doubt that in many instances where albumin and casts are found in the urine, the patients are assumed to be nephritic and are treated by limiting proteins in the diet and a more or less hopeless attitude assumed both on the part of the patient and the physician. A slightly more critical study will enable the physician to isolate clinically the nephroses or the group of cases in which the nephrotic element is predominant, and by treating them rationally, obtain better results and inspire at least a measure of hope. It is because of this difference in treatment and the relatively good prognosis in the nephrosis group, with the consequent importance of recognizing the condition, that I have ventured upon this discussion. The first use of the term nephrosis was in 1905 by Mueller and the literature of this subject dates from that time. Mueller used the term to describe the purely degenerative conditions of the kidney. He was describing an anatomical condition and did not attempt a clinical differentiation. Munk, in 1913, de-

\*Chairman's Address read before Section on Medicine, Illinois State Medical Society, Springfield, May 18, 1932.



scribed the lipid degeneration which he discovered in certain cases of parenchymatous nephritis due to syphilis. He found doubly refractile lipid bodies in the urine of these patients and used the term "lipoid nephrosis" to describe the condition. He considered syphilis as an important etiological factor. Very shortly after Munk's work, Volhard and Fahr included nephrosis in their widely accepted classification of renal disease and added greatly to the popularity of the term in the German Medical World.

A few years later the disease appeared in the United States under the sponsorship of Epstein and his studies and contributions to the literature have gone far to establish this disease as a definite entity with a rational treatment, and although his views as to its metabolic pathogenesis have not been universally accepted, he has been the leader in this country in the development of the subject. There have been objections to the term nephrosis, especially from an etymological standpoint and numerous substitutes have been suggested—among them nephropathy and nephrodystrophy. Nephrosis, however, has stood the test of time and is probably a permanent fixture in medical nomenclature.

The clinical picture presented in this condition, which more and more clinicians call a definite disease entity, is a rather definite one. The patient has a pasty, waxy pallor. Edema is invariably present, usually of marked degree, this being the symptom for which the patient usually seeks medical advice. Fluid is often present in the serous cavities. Oliguria is characteristic. There is a very marked albuminuria with cylindruria, the casts being of the hyaline, granular and epithelial varieties, the hyaline perhaps most numerous. There is never a macroscopic hematuria. Erythrocytes are seldom found in the urine and never in any considerable number. Doubly refractile lipid crystals are frequently found in the urine sediment. Contrasting strongly with cases of glomerulo-nephritis, the blood in uncomplicated cases does not show an anemia and there is no azotemia. The blood cholesterol is increased and in some cases very markedly so. There is a decrease in the total blood protein and an inverse albumin globulin ratio. The basal metabolic rate is in most cases below normal.

The blood pressure is not elevated and the heart is rarely hypertrophied. The negative features mentioned, i. e., the absence of anemia, azotemia, hypertension and cardiac hypertrophy, are characteristic of this disease and in uncomplicated cases remain negative during the course of the disease.

The disease usually pursues a chronic course—the edema and other symptoms having a tendency to recur at varying intervals after improvement or apparent complete recovery. Ehrlich reported a case in which the condition lasted for seventeen years and showed clinically, as well as anatomically, all the signs of this disease. Mackay and Johnston reported a case that had been under their observation for six years and in which the history indicated at least seventeen years duration.

No definite etiology of chronic nephrosis has been established. It is a comparatively common disease in childhood but is rare in adult life, and is rarely observed after the fourth decade. Volhard believes that there may be a familial tendency. Munk formerly considered syphilis as the most common causative factor and many cases of syphilitic nephrosis have been reported. It has been thought by some observers that the so-called syphilitic nephrosis was a mercurial nephrosis. This opinion, however, has been disproved by the curing of syphilitic nephrosis by the use of mercurials and other antisiphilitic treatment and pathologists have demonstrated the difference anatomically between the two conditions. Epstein states that in his experience syphilis has not been a frequent cause of the disease, having encountered only three cases of nephrosis with syphilitic history and a positive Wassermann reaction, and even Munk now believes that it is not an important factor. Nasal infections and sinus involvement have seemed to have an important relationship in children. Aldrich reported a group of seven cases of nephrosis in children in all of which there was definite nasal infection. Wimmer and Marriott consider nasal infections an important factor in children. There are some cases in which the disease seems traceable to other types of infection but in most cases it is impossible to establish any etiology.

There are three present theories as to the pathogenesis of nephrosis. Elwyn, Loehlein and

others consider that the process is always preceded by a glomerulo-nephritis, which after recovery from the inflammatory lesions leaves a residual degenerative process in the tubular epithelium. Volhard and Fahr consider the degenerative condition of the tubular epithelium in the kidney as primary. The third theory, that of Epstein, is that the condition is primarily a metabolic disturbance, involving the protein metabolism and secondarily the fat metabolism, and that the renal lesions are entirely secondary to this general metabolic disturbance. He has applied the name diabetes albuminuricus because he believes that the albuminuria of chronic nephrosis is not of renal origin but is the expression of a profound and general metabolic change. Although Epstein is an advocate of thyroid therapy in nephrosis and shown that these patients tolerate very large doses of thyroid, he considers the condition not one of hypothyroidism but rather one in which the disturbed metabolic process calls for more thyroid than is normally produced in the body. In other words in chronic nephrosis there is a relative hypothyroidism as contrasted to an actual hypothyroidism in myxedema. In a very recent personal communication, Dr. Epstein states that more and more experience has only strengthened his views on the subject of nephrosis and that the same holds good for the use of thyroid in the treatment of these cases.

Since nephrosis is a comparatively uncommon disease and the prognosis is relatively favorable, there has not been a large number of necropsy reports. There has, however, been a sufficiently large number to establish the pathologic anatomy of the disease. Fishberg, in the recent edition of his book "Hypertension and Nephritis," states that he has seen four such necropsies in the past three years. Necropsies have been reported by Murphy and Warfield, Shapiro, Ehrich, McElroy and others. Grossly the nephrotic kidney is somewhat enlarged, the capsule strips easily, the cortex is wider than normal and is greasy in appearance with yellowish areas throughout. Microscopically, the significant finding is degenerative changes in the tubular epithelium—most marked in the proximal convoluted tubules. The epithelial cells contain fat and lipid material and much of this lipid material is doubly refractile.

Changes in the glomeruli are seen at times but these changes are not those characteristic of inflammation but are fatty changes occurring in the layers of Bowman's capsule. Shapiro, in his report, describes the degeneration of the tubule cells, proliferation of the interstitial tissue with constriction of the glomeruli and contraction of the kidneys. He states that if the tubules are not too severely damaged some of them regenerate and render the surface of the kidney granular. Murphy and Warfield, in their necropsy report, state that there was no glomerular inflammatory lesion. Ehrich's case, previously referred to, showed at autopsy the typical nephrotic findings and the kidneys were still much enlarged. While it has been definitely established that there is anatomically a pure nephrosis, there are cases, of course, in which the anatomical findings are mixed—those of both nephrosis and glomerular nephritis being present. An interesting case is reported in the Cabot case records in which the clinical symptoms were partially those of nephrosis and partially those of nephritis and the anatomical findings were those of a glomerular nephritis with a secondary nephrosis.

The relatively good prognosis in uncomplicated cases of nephrosis has been previously unmentioned but unfortunately complications are common. The nephrotic patient is particularly susceptible to infections and especially so, is the child with nephrosis. The pneumococcus is most often the offending organism and strangely enough pneumococcal peritonitis is not an infrequent complication. Erysipelas and erysipeloid skin lesions and abscesses are other complications encountered at times. Stewart compiled from the literature twenty-three cases of nephrosis in which pneumococcal peritonitis developed and emphasized the close relationship existing between the two conditions—of the twenty-three patients only two recovered. He reported three additional cases, all in children, all showing at least temporary recovery. Fishberg states that Schwarz and Kohn were able to demonstrate bacteremia at one time or another in six of nine children with chronic nephrosis—pneumococcus Type IV being found most often. Bearing in mind the fact that these complications are the most usual cause of death, one should be alert in determining the cause of abdominal pain or



unexplained fever in these patients.

The treatment of nephrosis has as its most important factor the institution of a proper dietary regimen and we are indebted to the brilliant studies of Epstein for the development of this diet, and for demonstrating how irrational and fallacious it is to use a low protein diet in these cases. The condition is one in which the blood protein is already depleted and if the supply of protein in the food is restricted the depletion in the blood becomes more complete and the patient, in his debilitated condition, becomes a ready prey to complications. The occasional anemia found in nephrosis is most often due to protein restriction. Epstein recommends a diet containing two to three grams of protein per kilogram of body weight, 120 to 140 grams daily to replace the protein loss of the blood plasma. The fats are reduced to about twenty to forty grams daily with a view to reducing the lipoidemia. The carbohydrates are moderately diminished. If the metabolism remains low, even with the use of high protein diet, thyroid is used. We are reminded, however, that the use of thyroid is to stimulate protein metabolism and that the protein feeding is the fundamental factor in treatment.

Epstein has demonstrated that patients with chronic nephrosis can tolerate large doses of thyroid, and when necessary to use it as an adjuvant to the high protein diet doses as high as fifteen grains, three times a day are employed, beginning, however, with smaller amounts. If improvement does not result from such doses, thyroxin is used intravenously at intervals of from five to ten days, the initial dose being from five to ten milligrams. The experience of many other clinicians has supported the assertion of Epstein that chronic nephrotic patients tolerate large amounts of thyroid. McClendon considers the administration of thyroid the most important factor in treatment and considers dietetic therapy as an adjunct only. Bannick and Keith employ a diet in which the protein is one gram to each kilogram of weight plus ten to twenty grams—i. e., eighty to ninety grams daily. They consider reduction of fat of minor importance and report that their experience with thyroid has not been very successful. It must be borne in mind that the high protein diet, not thyroid

therapy, is the essential in treatment and that in many cases the high protein diet suffices. Although there are still some opponents, the contention of Epstein that a high protein diet should be used in chronic nephrosis has been widely accepted. The patient should rest in bed until the edema disappears. In the syphilitic cases anti-luetic treatment should be instituted and diuretics, such as salyrgan and novasurol may be used where very marked edema is present, the action of these drugs being intensified by preliminary administration of ammonium chloride.

The following case is reported:

A. M. Female, aged 39 years; nativity, German; single; occupation, domestic.

Patient consulted a physician early in October, 1931, because of edema. He placed her in St. Mary's Hospital and a diagnosis of nephritis was made. She was kept in bed and treated with a low salt, low protein diet and her condition became steadily worse. On November 17, 1931, she was referred to me for treatment. The history at that time was as follows:

The family history is excellent. Both mother and father are living. Four brothers and three sisters are living and well. One brother died in infancy.

The previous illnesses included influenza, measles and whooping cough. The whooping cough occurred in late adolescence, following which the patient had a discharging left ear which has continued to drain at varying intervals since. She has had numerous attacks of tonsillitis and has had frequent "colds." In 1930 tonsillectomy was performed. She was also operated on for hallux valgus in 1930. Venereal disease is denied.

She has recently gained weight rapidly; thinks she has gained about fifteen pounds within the past month or two. There have been no other symptoms. Appetite is good and she has had no cough, dyspnea or other symptoms of cardiac disease. She admits, however, that recently, since gaining weight, she has been slightly dyspneic at times upon ascending stairs. Patient has not had nocturia and believes that she voids less urine than normally.

Physical examination disclosed the following:

A marked generalized edema was present and the skin presented a pasty pallor.

Weight, 160 pounds; Height, 61 inches.

Patient was co-operative and there was no indication of pain or discomfort, although there was a worried anxious facies. There was no dyspnea, cyanosis or cough. The left ear drum showed an old perforation and a thin fluid discharge was present. A small portion of tonsil was evident in the left fossa. There was moderate dental caries. Otherwise, the head and neck were essentially negative. The fundi were normal.

The shape of the chest was normal. The heart tones were negative and no murmurs or thrills were present. Second aortic sound was not accentuated and the apex

beat was not seen or palpated. Upon percussion the supra cardiac dullness was found to be 4 cm. in width. The left border of cardiac dullness 10 cm. from mid-sternal line and right border of cardiac dullness 2 cm. from mid-sternal line. The blood pressure was systolic, 100; diastolic, 72. Peripheral arteries were soft. The lungs were negative to physical examination.

The abdominal wall was slightly edematous. Liver and spleen were not palpable. There were no palpable masses and no muscular rigidity and no evidence could be found of fluid in the abdominal cavity. The vaginal and rectal examinations disclosed no abnormality. There was no evidence of pathologic processes in the bones or joints. Neurological examination disclosed no reflex or sensory changes.

Upon Roentgen examination an old sclerosing type of mastoid was found on both sides. On the right side, the lateral sinus was outlined suggesting destruction of bone. Roentgen examination of the teeth confined the physical finding of caries in the upper left premolar, right central and lateral incisor teeth. The sinuses were negative.

The urine contained albumin, a single specimen boiling solid, hyaline and granular casts, a few leucocytes and no erythrocytes. There was no glycosuria. The twenty-four hour specimen showed five grams of albumin. Numerous specimens showed constant large amounts of albumin. The specific gravity of the urine varied from 1,014 to 1,030. There was a definite oliguria, the twenty-four hour excretion varying from 300 to 600 cc with occasional larger amounts. The blood non-protein nitrogen was 26.8 Mg. per 100 cc and the blood cholesterol was 476.2 Mg. per 100 cc. The erythrocytes numbered 5,620,000; hemoglobin (Newcomer) was 90 per cent; leucocytes—13,200, of which 59 per cent. were segmented cells; 35 per cent. lymphocytes; four per cent. monocytes and two per cent. were eosinophiles. The blood Kahn test was negative.

The phenolsulphophthalein output was 67.5 per cent. in two hours. An orthodiagram disclosed the heart width as 13.9 cm., about one centimeter greater than normal for the patient's height and weight. The electrocardiogram showed some left axial deviation but otherwise was normal. The metabolic rate was minus ten.

A diagnosis of nephrosis was made, based upon the positive findings of oliguria, albuminuria, cylindruria, edema, hypercholesterolemia, excellent kidney function, moderate decrease of metabolic rate and the absence of hypertension and azotemia. Although some cardiac hypertrophy was shown, it was considered irrelevant in this case.

The patient was kept in bed and placed on a diet containing protein, 140 grams, carbohydrate, 200 grams and fat, 30 grams. Thyroid was given in small doses for one week, at no time exceeding four grains daily. Theophylline-ethylein-diamine was given in doses of three grains three times daily.

Within a few days after the institution of this regimen, improvement was noted, this being evidenced by a gradual diminution of the edema, an increase in

the amount of urine voided and a decrease of albuminuria.

She was kept in bed for one month after which she was permitted to be up a portion of each day for two weeks. At that time the edema having entirely disappeared and there being only a trace of albumin in the urine, she was permitted to leave the hospital but was seen at frequent intervals and laboratory observations continued. She has been employed at her regular work since February 1, 1932. There was a definite improvement in morale with the beginning of disappearance of the edema.

On March 29, 1932, the urine contained no albumin and no erythrocytes but contained a rare hyaline cast and the blood non-protein nitrogen was 29.7 Mg. per 100 cc of blood. The systolic blood pressure was 100 and diastolic 72. The phenolsulphophthalein output was sixty-five per cent. in two hours, the blood cholesterol was 254 Mg. per 100 cc. There was no edema and no subjective symptoms.

#### SUMMARY

1. The subject of nephrosis is briefly reviewed and attention called to the factors of importance in making the clinical diagnosis of this condition.

2. A case of nephrosis is reported in which a response to a high protein diet was excellent a low protein diet having been used without improvement. The patient at this time has entirely recovered clinically.

#### REFERENCES

1. Hypertension and Nephritis. By Arthur M. Fishberg, M. D.
2. Epstein, Albert A.: Thyroid Therapy and Thyroid Tolerance in Chronic Nephrosis, *J. A. M. A.*, 87: 913-918, (Sept. 18) 1926.
3. Ehrlich, Wilhelm: Lipoid Nephrosis of Unusual Duration, *Arch. of Internal Med.*, 45: 749-759, (May) 1930.
4. Mackay, Eaton M., and Johnston, Christopher: Lipoid Nephrosis, Report of a Case of Unusual Duration, *Arch. of Internal Med.* 45: 734-741, (May) 1930.
5. Wimmer, Shirley D., and Marriott, W. McKim: The Relation of Sinusitis to Nephrosis in Children, *Arch. of Otolaryngology*, 13: 159-165, (February) 1931.
6. Elwyn, Herman: The Pathogenesis of Lipoid Nephrosis, *Arch. of Internal Med.*, 38: 346-359, (September) 1926.
7. Murphy, Francis D., and Warfield, Louis M.: Lipoid Nephrosis, *Arch. of Internal Med.*, 38: 449-468, (October) 1926.
8. Shapiro, Phillip F.: Lipoid Nephrosis, Pathology, Genesis and Relation to Amyloidosis, *Arch. of Internal Med.*, 46: 137-160, (July) 1930.
9. McElroy, J. B.: Nephrosis, *J. A. M. A.*, 89: 940-944.
10. Stewart, Walter B.: The Pneumococcus in Nephrosis, Read before the Pediatric Section Medical Society of New Jersey, Atlantic City, June 13, 1929.
11. McClendon, S. J.: Thyroid Extract in the Treatment of Nephrosis, *J. A. M. A.*, 94: 1202-1204, (April 19) 1930.
12. Bannick, Edwin G., and Keith, Norman M.: The Treatment of Nephritis and Nephrosis with Edema, *J. A. M. A.*, 91: 1944-1951, (December 22) 1928.
13. Service, S. F.: A Survey of the Literature, and Report of Four Cases, *Amer. J. of Med. Sci.*, 179: 660, (May) 1930.
14. Alter, Nicholas M.: The So-Called "Lipoid Nephrosis," *Arch. of Pathology*, 7: 1122-1123, (June) 1929.
15. Buck, Robert W.: The Diagnosis of Nephrosis, *New England Jour. of Med.*, 201: 973-979, (November 14) 1929.



16. Christian, Henry A.: Nephrosis: A Critique, *J. A. M. A.*, 93: 23-25, (July 6) 1929.
17. Lichtenstein, L., and Epstein, Emanuel Z.: The Blood Lipoids in Nephrosis and Chronic Nephritis with Edema, *Arch. of Internal Med.*, 47: 122-127, (January) 1931.
18. Major, Ralph H.: Chronic Nephrosis: Is it a Clinical Entity, *The West Virginia Med. Jour.*, 25: 449-454.
19. Holmes, William H.: Lipoid Nephrosis, *Illinois Med. Jour.*, October, 1928.
20. Liu, Shih-Hao: The Effect of Thyroid Medication in Nephrosis, *Arch. of Internal Med.*, 40: 73-79, (July) 1927.

## RADIOGRAPHIC DIAGNOSIS AND MANAGEMENT OF MASTOIDITIS\*

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The clinical manifestations of mastoiditis are not infrequently very vague as well as protean in character, and often it is impossible to ascertain by the usual clinical examination whether or not the mastoid is involved. Not infrequently, infections of the middle ear and occasionally infections of the external meatus, simulate mastoiditis, so that it is important that one make a differential diagnosis. The radiographic study of the mastoid is of paramount value in making a diagnosis of mastoiditis. By this method one can study the type of mastoid, and observe the development, size, and distribution of the cells. One can see which cells are involved, as well as the extent of the involvement. Although the complications in mastoiditis are somewhat infrequent, one may occasionally elicit radiographic evidence of epidural abscess, as well as perisinus abscess. This type of examination is also very valuable in the study of recurrent and chronic types of mastoiditis.

In a paper of this description it is unnecessary to enter into detail regarding infections of the middle ear. However, the relationship of the infection of the middle ear to the mastoid antrum, and mastoid cells, is so close that a brief discussion would be pertinent.

The tympanic cavity of the child is an irregularly shaped cuboidal space which is in direct communication through the eustachian tube with the naso-pharynx. Lined as it is with a mucous membrane which is continuous with the naso-pharynx, it may be regarded as a part of the upper respiratory tract, and as this continuity of surface extends from the naso-pharynx through the eustachian tube to the tympanic cavity, the mastoid antrum and the

ramifications of the mastoid cells, there is here an area which, from its anatomical relationships, is peculiarly susceptible to various inflammatory infections. The eustachian tube in the child is relatively shorter, wider, and straighter than it is in the adult, and the passage of infection from the naso-pharynx to the ear is thus favored.

The mastoid cells develop with the growth of the mastoid process which usually appears as a well defined structure in the second year. As a general rule the mastoid process does not show cellular development before three years of age. The antrum in the infant is large enough to contain a small pea. It is separated from the surface by a thin papery layer of bone, and it is lined by a mucous membrane which is continuous with that of the tympanic cavity with which it communicates through the aditus. It is this close relationship which explains the frequency with which infection of the tympanic cavity is followed by disease of the antrum, and in the great majority of cases, the disease is therefore resultant from a direct spread from the middle ear, or is a coincident infection.

The average infant below three years of age will usually show a well defined antrum, some periantral cells, and not infrequently a few cells extending to the knee of the sinus. During infancy there are two types of a mastoid process: one in which the bone is dense, a form that persists in 1% of the adults; and one in which the mastoid is diploetic, a form that is retained in 20% of the adults. In adults three varieties are usually seen:

1. Those in which the cells are large and communicate with each other and with the tympanic sinus.
2. Those in which the central cells are large and communicate with the sinus, while the peripheral cells are small and enclosed.
3. Those in which all of the spaces are small and enclosed. The cells surround the sinus and may pass backwards to the masto-occipital suture, forwards to the supra-meatal region, upwards to the masto-parietal suture, and downwards to the apex of the mastoid. The veins from the superficial cells empty into the periosteal veins of the mastoid, and by these inflammation may reach the surface and give rise to edema, as well as periostitis.

For general classification the mastoid process may be divided into two distinct types: a. The non-cellular, and b. the pneumatic. Radiographically, the non-cellular type of mastoid is seen as an external and internal auditory

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meatus. Above and posterior to the canal is located a small cell which is called the mastoid antrum. Directly posterior to the canal, and separated from it by a partition of bone, is a large vessel, the sigmoid sinus, which is commonly termed the sinus. The lateral sinus passes around the occipital bone until it reaches the posterior superior border of the mastoid process, and then turns downward, passing through the mastoid process to enter the jugular vein. The sharp angle at the turn is known as the knee of the sinus. The rest of the mastoid consists of dense bone.

In the pneumatic type of mastoid all of the relationships are the same as in the non-cellular type but in addition, there are cells enclosed by trabeculae extending around the mastoid antrum occupying the body of the mastoid, the tip, and sometimes, well into the occipital bone. The cells also extend upward into the squamous portion of the temporal bone, and occasionally, extend to the temporo-mandibular articulation.

The mastoid is usually similarly developed on both sides. Occasionally the development and structure of one mastoid may vary from that of the opposite side. It is always of marked importance in examining the mastoid to examine the opposite one for comparison, more particularly in forming an opinion as to whether a suspicious area on the film is a large cell, or an area of absorption. When, however, both mastoids are diseased, one will also have to depend upon the clinical and physical findings.

In examining the mastoid the following aspects should be considered:

1. Age of the patient.
2. Past history.
  - (a) The evidence of previous disease.
  - (b) The evidence of a previous operation.
3. The etiology of the otitis media.
4. The clinical findings.
5. The blood picture.
  - (a) Red.
  - (b) White.
  - (c) Differential count.
  - (d) Occasional blood culture.
  - (e) Examination of spinal fluid.
6. The associated pathology.
7. The complications.
8. The type of mastoid.
  - (a) Non-cellular.
  - (b) Cellular or pneumatic.

9. The pathological X-ray findings.

10. The indications for operation.

Mastoiditis usually begins as hyperemia which increases in amount until the direct inflammation of the mucous membrane lining the cells takes place. Pus is eventually formed and accumulates in the middle ear and antrum, and in the cellular structure, if such a structure exists. Discharge through the canal occurs by spontaneous rupture of the drum or through the opening following a paracentesis. If the discharge is free and the type of mastoid is variable, resolution may occur and the mastoiditis may slowly clear up. If the formation of pus is in excess of the drainage the pus accumulates in the cells until pressure ensues. The breaking down of cells often begins at the knee of the sinus, as well as at the tip, and the pus may be evacuated through the external mastoid cortex of the petrosquamous suture forming a sub-periosteal abscess behind the ear. This is often the sequence of events in mastoiditis. The pus may perforate the inferior surface of the mastoid process into the digastric fossa, forming an abscess beneath the sterno-mastoid (Bezold's abscess). The pus may extend upwards through the roof of the antrum or the tympanic vault, into the middle cranial fossa (cerebral abscess), or backwards it may spread into the lateral sinus (sinus thrombosis) or into the posterior cranial fossa (cerebellar abscess). The internal ear may become infected (labyrinthitis).

Any of the above complications may ultimately end in meningitis, or there may be a direct infection of the meninges leading to a rapidly fatal termination.

The following pathological findings may be revealed on the roentgenograms.

1. Hyperemia of the mastoid cells.
2. Acute catarrhal mastoiditis.
3. Purulent mastoiditis.
4. Softening of the cell walls.
5. Necrosis of the cell walls.
6. Destruction of the sinus wall.
7. Destruction of the tegmen tympanum.
8. Cholesteatoma.
9. Sclerosis.

In arriving at the final conclusions in a case the clinical history, the physical and laboratory findings, and radiographic findings must be taken into account. If the referring clinician or surgeon consults with the roentgenologist



there should be no diversity of opinion in the management of the case.

#### CONCLUSIONS

1. The radiographic examination of the mastoid reveals its type, the extent of its development, the cells involved and their location; the position of the sinus, as well as the character of the anterior sinus wall and the tegmen tympani.

2. Repeated roentgen ray examinations are of value in determining whether the infectious process in the mastoid is clearing up, remaining stationary, or advancing.

2. In conjunction with the clinical findings, the radiographic examination may indicate or contra-indicate surgical intervention.

4. The presence of perisinus abscess or epidural abscess may often be elicited by this examination.

5. The radiographic examination of the mastoid is of cardinal importance, as well as indispensable as a diagnostic aid in all cases of mastoiditis.

#### DISCUSSION

Dr. Charles D. Sneller, Peoria: I appreciate the paper on mastoiditis very much. I should like to emphasize a couple of points which I think are of importance.

In the first place, occasionally a mastoiditis can occur without an apparent involvement of the middle ear. However, since we know that such a case may occur, occasionally with much pain and swelling behind the ear, in the presence of a normal ear drum, we might assume there is mastoiditis present. Here an x-ray is of fundamental importance. However, if in examining the x-ray all the trabeculations appear to be hazy, it does not follow that there is an involvement of the mastoid. As a matter of fact, if in addition to the haziness you find breaking down of trabeculations, anyone who has been mixed up in such cases where two or three doctors are concerned, will know what is meant.

Second, that a posterior-anterior view will sometimes give value as to depth of involvement you will not get from the lateral views.

Then the irregularity of the anterior wall of the lateral sinus is of tremendous importance. Sometimes you have no signs of involvement of the lateral sinus or invasion of the blood stream, yet you have some little irregularities and find actual breaking down of the anterior wall and perhaps can prevent future sinus thrombosis by suggesting early operation.

In regard to this diagnosis of a lateral sinus thrombosis, occasionally if your lateral sinuses are of equal width on the diseased and normal sides, there will be a greater density visible on the involved side when the thrombosis is present as compared with the normal side. I have seen a couple of cases where this finding can be relied upon.

There were other very interesting and very important points in this good paper.

Dr. Harry Olin, Chicago: I think Dr. Beilin's paper was very well presented, and I should like to emphasize several points which I think in the past have been more or less overlooked by the roentgenologist.

I think it is of paramount importance in the diagnosis of mastoid disease by x-ray that the clinician give the roentgenologist some of the clinical history, and the more salient features. I think without that it is impossible to interpret with intelligence any mastoid x-ray examinations. I do not attempt to do it, because I have been guessing at many things that I have learned to know clinically.

One of the things that has helped me considerably for the past eight years in dealing with mastoid disease is taking stereoscopic examinations of the lateral views. In many doubtful cases this has been of extreme value. I experimented for some three or four years until I was able to say to myself that I could take them properly. If you can teach your technicians to put two radiographs on the plate so that when you put them in the view box you can see both right and left mastoid, I think it will be of tremendous value, and undoubtedly in any difficulty it will tide you over the critical situation.

Dr. F. Flinn, Decatur: I should like to ask Dr. Beilin a question a little aside from the clinical study. I have had two cases referred to me recently for therapy which have been operated on two or three times each for mastoid disease. They still have discharging middle ears, one for a period of twenty years and one for a period of seven years. I have radiated those areas and one case has not had any discharge for about three or four months. The discharge in the other case decreased materially. I have never had any experience before in radiating these cases, and I should like to have Dr. Beilin express his opinion on whether I am going to get permanent results.

Dr. David S. Beilin, (closing discussion): A few years ago we had an excellent opportunity to study a fairly large number of cases of mastoiditis. Many of the cases were under direct observation and had several radiographic repeated examinations, in order to determine as to whether the pathological process in the mastoid was clearing up, or remaining stationary, or advancing. A number of these cases were operated upon. A check-up of the surgical findings with the roentgenological findings revealed very valuable information.

Not infrequently, the physician waits too long before operating upon his mastoid cases. When one finds a cellular occlusion in one mastoid, whereas the opposite mastoid reveals normal cellular structure, one can be safe in saying that those cells contain pus if it is an acute case of mastoiditis. In conjunction with the usual clinical findings, cellular occlusion of the mastoid cells should indicate surgery.

In acute cases of mastoiditis one should not wait until the cells are destroyed, as not infrequently, during the interim a complication may occur, as sinus thrombosis, epidural abscess, meningitis, etc.

Stereoscopic examinations of the mastoids do not re-

veal any more information than a competent lateral and posterior anterior views with the opposite side for comparison. These views show the extent of the development of the mastoid cells, what cells are involved, how large the mastoid is, and the location of the sinus.

Superficial x-ray therapy not infrequently will clear up an incipient case of mastoiditis.

Many cases of mastoiditis only show some cloudiness of the mastoid cells or a slight degree of fuzziness of the trabeculae. This alone is no indication for operation, as not infrequently, repeated roentgenological examinations of the mastoid will show the process returning to normal. However, in other cases repeated examinations show, over an interval of a few days, that the process is advancing to the extent of occlusion of the cellular structure, and when this finding occurs, in conjunction with the clinical findings, operation is indicated.

### CLINICAL EXPERIENCES IN THE TREATMENT OF PEPTIC ULCER WITH GASTRIC MUCIN\*

SAMUEL J. FOGELSON, M. D.

CHICAGO

The objective of this paper is to review briefly the physiologic rationale for the use of gastric mucin in the treatment of peptic ulcer and to summarize the clinical results which have been obtained by the three associated Northwestern University Medical School units evaluating gastric mucin as well as the clinicians throughout the United States to whom mucin has been released and who have reported to us the results they have obtained.

My investigation of mucin concerned itself with the protective mechanism against the corrosive action of acid chyme as contrasted with the extensive research on acid-pepsin digestion. Review of the literature on gastroduodenal pathology suggested mucin as one of the most important factors protecting the gastric and duodenal mucosa against chemical and mechanical irritation. The Pavlov school has long believed that mucus not only functions as a physically protective substance, but also neutralizes or buffers acid. The physical protective rôle seems to be well established, but the value of mucus as a buffer may certainly still be contested. (Bonis: *Z. Klin. Med.*, 113:611, 1930) (Mitchell: *J. Physiol.*, 73:427, 1931). Whitlow working with Prof. A. C. Ivy has demonstrated that HCl-pepsin diffuses slowly through a film of mucus, and that if the mu-

cous film covering the mucosa of the pyloric antrum is wiped away, N/10 HCl application causes bleeding much sooner than otherwise.

In 1929, I prepared a gastric mucin from hog stomach linings purified enough for a preliminary clinical trial. The early results were encouraging enough to stimulate further investigation of its experimental and clinical possibilities.

Prof. A. C. Ivy found that the administration of mucin could reduce the incidence of experimentally induced ulcer occurrence in dogs. In a series of twenty biliary fistula dogs in 50% of which ulcers usually occur in about four weeks, adequate doses of mucin prevented gastroduodenal ulceration. In the internal duodenal drainage dogs (Mann-Williamson operation) the incidence of ulcer occurrence was reduced by adequate doses of mucin from 95% to approximately 37%. (Kim and Ivy: *J.A.M.A.*, 97:1511, 1931) (Kim and Ivy: *Proc. Soc. Exper. Biol. and Med.*, 29:686, 1932).



Fig. 1. This shows that mucin retards but does not entirely inhibit the digestive action of gastric juice upon protein in vivo. I A: This frog leg was immersed in 2% HCl plus 2,000 units of pepsin with enough mucin to make a 2% mucin mixture. I B: This contained the same acid-pepsin mixture as I A, but no mucin was present. II A: This frog leg was immersed in .2% HCl plus 1,000 units of pepsin with enough mucin to make a 2% mucin mixture. II B: This contained the same acid-pepsin mixture as II A but no mucin was present. III A: This frog leg was immersed in .3% HCl plus 2,000 units of pepsin with enough mucin to make a 2% mucin mixture. III B: This contained the same acid-pepsin mixture as III A, but no mucin was present. IV A: This frog leg was immersed in .3% HCl plus 1,000 units of pepsin with enough mucin to make a 2% mucin mixture. IV B: This contained the same acid-pepsin mixture as IV A, but no mucin was present.

\* (Department of Experimental Surgery, Northwestern University Medical School.)

\* Read before section in Medicine, Illinois State Medical Society, May 18, 1932.



The protective role of mucin against acid-pepsin digestion was studied with living frog legs. I found that if the hind legs of a "pithed" living frog are placed in a solution of artificial gastric juice, they are digested. But, if one leg is placed in gastric juice containing mucin, and the other in gastric juice without mucin, the latter is digested more than the former.

Early in my clinical experiments I became satisfied that mucin probably was a very important adjunct in the treatment of peptic ulcer. To enrich our clinical experience, the Northwestern University Medical School established two additional units to use mucin. One of these was at the St. Luke's Hospital, Chicago, under the direction of Dr. Clarence G. Brown, and the other at the Passavant Hospital, Chicago, under the direction of Dr. Arthur J. Atkinson.

The establishment of the dosage of mucin was the first difficulty, and I started by giving our patients as much mucin as could be physically tolerated. I found that approximately 100 grams of mucin mixed in milk and cream and properly flavored, could be tolerated by the average patient. This mixture was divided into hourly doses in acutely ill patients, and as soon as the subjective symptoms were relieved the doses were combined so that the patient was taking a milk-cream-mucin mixture every two hours throughout the day. In addition, the usual convalescent ulcer diet was prescribed. When any pylorospasm was suspected, atropine was given to tolerance.

In the average uncomplicated ulcer patient, this routine relieves practically all the subjective symptoms within one week. I felt that to evaluate mucin properly we should consider only a group of patients which were defined

as "intractable." This included only patients who had had a definite diagnosis of ulcer for at least five years, during which time they had been under competent surgical or medical management, and still had partial or complete disability. All patients in whom there was some question as to intelligence adequate to permit satisfactory cooperation with their physician during the last year were eliminated from this group. In the three Northwestern Units we were able to collect a total of 110 such patients.

The Passavant unit treated 24 of these patients without failure. The St. Luke's unit treated 37 patients with a single failure. This failure was later operated upon and found to be a penetrating duodenal ulcer complicated by what was diagnosed as an essential gastropyloro-duodenitis. I studied 46 such patients and was able to give 39 complete subjective relief of symptoms with complete economic restoration. In this group of 110 patients there were 37 cases which had been previously operated upon and 21 acute massive hemorrhage cases. It was possible to control all the patients with hemorrhage, and occult blood disappeared from the stool in an average of nine days.

In addition to these patients treated by the associated Northwestern groups, questionnaire reports from clinicians throughout the United States cooperating with the gastric mucin committee permit the addition of 60 more peptic ulcer cases which may be classified in this intractable group. These clinicians were able to control the subjective symptoms which had not responded to any other previous therapy in approximately the same period of time as we at Northwestern.

TABLE 1. SUMMARY OF PEPTIC ULCER PATIENTS TREATED BY DR. S. J. FOGELSON.

	Group I Jan.-June, 1930	Group II July-Dec., 1930	Group III Jan.-June, 1931	Group IV. July-Dec., 1931	Totals
No. of cases	24	10	34	42	110
Prev. operation	1 resection	0		1 resection	19
	1 G. E.		6 G. E.	6 G. E.	13
	1 pyl-plasty		2 sut. perfor.	1 pyloroplasty	4
Av. wgt. gain	18 lbs.	15 lbs.	14 lbs.	15 lbs.	
Ave. inc. R. B. C.	800,000	700,000	650,000	500,000	
Av. inc. hemog.	35%	25%	30%	30%	
Days in Hosp.		14	35	53	116
Intractable ulcers	9	6	15	19	49
G. J. ulcers	2	0	5	5	12
Massive hemor.	1	2	4	4	11
Failures	0	1	2	4	7
Recurrence	0	0	1	1	2

In the 110 peptic ulcer patients which I have treated during 1930 and 1931, there have been two recurrences. Doctor Atkinson has had one recurrence. The fact that these patients have been observed for less than two years does not permit a definite conclusion as to the incidence of recurrence after mucin therapy, but in reviewing the previous history of these patients the impression is obtained that mucin has definitely decreased the incidence of recurrence. Inasmuch as most of these patients have had their previous recurrences in the spring and fall, I give my patients who are no longer on active treatment prophylactic doses of mucin in February and March, October and November.

TABLE 2. SUMMARY OF CASES TREATED BY THE THREE NORTHWESTERN UNIVERSITY MEDICAL SCHOOL GROUPS UNDER DIRECTION OF DRs. A. J. ATKINSON, CLARENCE F. G. BROWN, AND S. J. FOGELSON.

Total number of cases.....	288
Intractable complicated cases not responding to previous therapy .....	110
Acute massive hemorrhage .....	21
Number of cases with gastro-duodenal surgery.....	37
Number of gastro-jejunal ulcers.....	3
Failures .....	*8
Recurrences .....	†3

\*Doctor Fogelson has experienced 7 of these failures in patients which were treated ambulatory. Doctor Brown had the other failure despite adequate hospitalization of the patient.

†Doctor Fogelson has had two recurrences. Doctor Atkinson has had one recurrence.

At present mucin is available to all clinicians who agree to cooperate with the gastric mucin committee of the Northwestern University Medical School in reporting the type of case treated and the results obtained. Our purpose in doing this is to afford a better basis for evaluating mucin in the treatment of peptic ulcer.

For the past six months the committee on gastric mucin has carefully assayed every batch of mucin manufactured for secretagogue content, irritating amines, viscosity, and bacteria. Every batch of mucin which does not meet rigorous prescribed stipulations is rejected.

*Summary:* Although mucin has been used for only approximately two years in the treatment of peptic ulcer, the following conclusions are justified:

1. Experimentally gastric mucin inhibits protein digestion in vivo.

2. The incidence of experimental ulcer formation in the dog can be radically reduced by adequate doses of mucin.

3. One hundred seventy intractable, complicated peptic ulcer patients were treated by the three associated Northwestern University Medical School groups, and by clinicians throughout the United States cooperating with the gastric mucin committee. Over 90% of these patients were relieved of all subjective symptoms in approximately one week.

4. There have been two recurrences in the 110 peptic ulcer patients treated by me during 1931. Doctor Atkinson has had one recurrence.

#### DISCUSSION

Dr. Lowell D. Snorf, Chicago: Dr. Fogelson is certainly to be complimented on the presentation of this particular subject for the work that he has done and the attempted control that he has followed throughout the work.

It has been my good fortune to be rather closely associated with both Dr. Fogelson and Dr. Ivy and to have had the opportunity of following rather closely both the laboratory and clinical work in the use of mucin. I have observed it both with enthusiasm and a reasonable amount of critical reaction. Whatever their results are at the present time, of course, can scarcely stand as a final critical analysis of their work, because we know that time only will give us a final interpretation of what the relative value of any one particular procedure is in peptic ulcer.

The classical work done by Dr. Fogelson and Dr. Ivy very definitely reveals the control of peptic or proteolytic action of gastric juice by mucin on normal tissue and on the gastric and duodenal mucosa. The experimental animals prepared according to the Mann-Williamson technique, have failed to develop peptic ulcers when mucin has been administered as to make the results more than coincidental. One may assume that in the clinical patient with striking ameliorating results obtained from mucin that it is not an accidental happening but that some very definite good has come from it. One is always impressed by certain experiences. In a number of instances where I have had the privilege of using mucin on cases described by Dr. Fogelson as intractable—patients that had had marked, continued secretion, not the acute ulcers, but the complicated ones when they have become much worse, and continue with marked symptoms after the usual types of management were employed and physiologic rest always attempted—mucin has suddenly produced very striking results to the extent that the patient feels better, is symptomatically improved, and over a period of many months continues to feel that

\*The author wishes to thank Prof. A. C. Ivy and other members of the faculty of the Northwestern University Medical School for their cooperation without which this work would have been impossible.



same improvement. When one has labored with such patients for months or years and then as has occasionally occurred, observe a relief that is next to dramatic it is to believe that mucin has a real virtue. I have not had the same good results reported here today but I shall continue to use it as an adjunct at all times.

It has been my experience also to use mucin in patients with hemorrhage. In some I have not succeeded in being able to control the hemorrhage. In others I have not only been able to control the hemorrhage, but I have had an experience of this sort: The patients that had had hemorrhage before, that had gained slowly, both in strength and as to evidence of blood building, on previous management, showed marked increase in strength and blood building after instituting mucin.

It goes without saying, however, that in the treatment of peptic ulcer one must necessarily follow that type of treatment that has been found to be of most value by clinicians over many years of observation and at present to use mucin as an adjunct.

There is room for speculation on the reasonable causation of the results obtained, and it may be that it does protect the stomach mucosa from proteolytic digestion by neutralization or by directing coating of the ulcer; and it may be that the effect that it has is in a secondary way on the stomach and primarily affecting some other organ. In other words, there may be some agent in mucin, some factor "X," that does have a specific effect on the organism in increasing the protective agents against the formation of peptic ulcer.

Dr. Fogelson is certainly to be congratulated on this presentation. It stimulates our enthusiasm. Whatever your reactions may be, it at least has one very good effect; that is, that although the subject of peptic ulcer may still remain in a state of quandary such clinical and laboratory results as have been reported here today must make us all feel that work along the investigation of etiology is worth our continued effort.

Dr. Leon Bloch, Chicago: My associate, Dr. D. H. Rosenberg and I have had experience with about 32 patients with peptic ulcer, mostly duodenal, to whom mucin was given. Unfortunately our results do not compare favorably with those reported by Dr. Fogelson.

We used the same form of treatment recommended by him, the same diet, and the same doses.

Six patients voluntarily discontinued taking mucin after varying periods of one dose to seven days because of nausea, vomiting, cramps, and diarrhea, with no benefit in any way. There was increased pyrosis and in some cases marked intensification of all symptoms.

Nine patients took mucin for periods of 3 weeks to 3 months. In none of these was there any amelioration of symptoms for any period of time. We insisted upon these patients taking the mucin. They took it, and sometimes felt better for a few days and then worse again. They also complained of untoward symptoms: nausea, vomiting, flatulence, cramps, or diarrhea.

Six patients took mucin for periods of 3 months to 8½ months. All of these had complete relief for variable periods of time, from 12 days to 2 months, and then relapsed while taking mucin. Many of these patients developed the same untoward symptoms mentioned before.

Seven patients, despite the fact that they developed

some anorexia, nausea, vomiting, or other symptoms, continued to take mucin and are all feeling very well and relieved of their symptoms.

One man who had never had any heartburn or ulcer distress of any kind, was given mucin because he had had 3 hemorrhages in the course of a year and a half. We reported him as free from hemorrhage at the meeting of the American Gastroenterological Association on May 2, 1932. On my return to Chicago I found him in the hospital again because of another hemorrhage while taking mucin. In the meantime he had developed all the symptoms of ulcer that he had heard about and had never experienced. Three other patients were treated elsewhere, one for a period of 6 months, who developed a perforation while waiting to go to the hospital; the second who took mucin for a week and then ceased because he could not tolerate it; and the third who had been a patient of mine, left me, took mucin for one year, and returned at the end of a year, because in the previous 3 months he had had intolerable distress. He went to the hospital for further ulcer treatment.

It is a difficult matter to evaluate the results of any form of ulcer therapy because the normal life cycle of ulcer shows a tendency to relapse and improve under any type of medical treatment or no treatment whatever. There is the tendency for the symptoms to disappear with rest in bed or on any suitable diet, with a change in one's surroundings, such as a vacation, or with emotional influences, as, for example, the hope that a patient may avoid the necessity of an operation if he follows a type of treatment that promises good results.

Furthermore, we know that intractable ulcers are intractable because many of them perforate into the liver or into the pancreas, that many have large indurated margins, still others are associated with diverticulae or stenosis of the duodenum, shortening of the gastrohepatic ligament, and chronic periduodenitis or perigastritis. All of these influences which further the chronicity of ulcer are not relieved by any form of medical treatment. The patients are not cured; if they have relief, it is temporary only.

I do not know why my results are different from those of Dr. Fogelson and his group. I simply report these cases as we have seen them. It is possible that further changes in the preparation of mucin and the elimination of some of the secretagogue elements that it has been shown to contain by the Mayo Clinic workers may lead to an improvement in mucin so that it will become more palatable in a larger number of cases.

Dr. Walter H. Nadler, Chicago: We have had the privilege of using mucin. Particularly gratifying results have been obtained in cases of recurrence after one or more operations for ulcer. While mucin is unpleasant to take for many patients, it can be incorporated in mixtures that are palatable. On the whole mucin promises to be a valuable adjunct in the treatment of peptic ulcer.

Dr. Sidney A. Portis, Chicago: The whole question of ulcer of the stomach and duodenum is again being revived for discussion at meetings through the advent of the use of mucin therapy. It is difficult to evaluate at this time just exactly how far-reaching this form of therapy may be.

The clinical results that have been brought to you this

morning by men whom I know are honest clinicians, men who have tried to evaluate their results in a cool and calculating way, cannot be thrown so easily aside and have it said that there is nothing to this form of therapy. However, from the standpoint of gastro-enterology, they must go further to evaluate this form of therapy.

They have shown that mucin certainly does not neutralize gastric acidity. In some cases it does; but we do not know in those cases whether it is due to the mucin or the diet. If mucin does not neutralize gastric acidity, then all our previous ideas about the digestive ulcer being related to the presence of hydrochloric acid must be thrown into the discard.

As Dr. Snorf pointed out to you, there is a certain "X" factor in gastric mucin, and in my evaluation of the clinical results that have been obtained so far I am wholly in accord. What there is in gastric mucin that inhibits peptic activity is still to be demonstrated. The very crucial experiments that Dr. Ivy has presented on the experimental ulcer in animals also must be further evaluated. He has diminished some of his ulcers by the use of alkalies, but not to the extent that he has with gastric mucin.

I question personally, not in a derogatory statement to what Dr. Fogelson has said, the wisdom at this time of treating either a massive hemorrhage of the stomach or duodenum with gastric mucin. Our results so far with the old standard methods of treating hemorrhage from the stomach and duodenum are as good as anything they presented here this morning; and furthermore, this material has a tendency to undergo bacterial decomposition and they know that it does, and when it cannot always be received fresh it may produce disturbances in that gastrointestinal tract which are healthful for a bleeding ulcer. All of us welcome in the treatment of ulcer of the stomach and duodenum anything that is going to help that ulcer patient get well; but with my long continued experience in the fluoroscopic room, seeing ulcer after ulcer, I will say to you that there are certain ulcers that I do not believe on any type of therapy—mucin therapy, alkaline therapy, any type of therapy that you wish—will ever get well medically and should have surgical intervention.

Furthermore, you are not to go away from here with the idea that just because these patients are clinically free of symptoms under mucin therapy you are to neglect the time-honored principle of handling an ulcer of the stomach or duodenum by not removing possible sources in etiological factors of ulcer. Recurrences happen under any form of therapy. I have seen patients who have had a silent bleeding ulcer get well have another silent bleeding ulcer.

We look upon those cases as embolic bleeding and no form of therapy is going to appreciably help these patients unless we get rid of the underlying factor.

Finally, I, too, am still open-minded on this subject of mucin. I know that there are men who have had different results from the other investigators. However, you can go through the whole field of medicine and find the same thing. That does not mean that mucin therapy should be thrown into the discard. After long continued observation over a period of five or ten years we will be able to evaluate the practical application of this therapy.

Anybody who can add something new to our line of endeavor in the treatment of ulcer is to be congratulated.

Dr. Samuel J. Fogelson, Chicago: There are just a few things that I think should be said.

Certain paradoxes seem to have developed with mucin therapy. Some clinicians report good results and some report bad. That is to be expected with any new form of therapeutics.

My one suggestion to those that are not able to duplicate our results—by "ours" I mean Atkinson's, Brown's, and mine—is to give mucin an opportunity to prove its true value.

We have a clinic every Sunday morning at St. Luke's Hospital in Chicago, and another clinic on Wednesday and Saturday at 303 Chicago Avenue, Northwestern University Medical School, in which these patients that you saw tabulated here today are seen regularly. You are all invited by Drs. Atkinson, Brown and myself to come to these clinics, see these patients, and assure yourselves of such results.

To me, the ulcer patient is a patient who is interested vitally in himself. He wants relief of pain. These intractable ulcer patients—110 of them—are certainly appreciative of the fact that they are relieved of their symptoms as Dr. Trapp has told you. They are not much interested in the scientific phases of this thing, I grant you, which is not to be discounted; but they are relieved of their abdominal distress and that, to me as a clinician is essential.

Any debate about the relative merits of mucin as contrasted to other types of therapy is at present premature. All that I can tell you, as Dr. Snorf and Dr. Portis have told you, is that mucin is far from a finished product; we hope, in the near future, to try to find the so-called "X" factor which may or may not be present. We are trying to purify mucin and at present I am reasonably certain that it may be safely used by either yourself or your patients; and you are welcome to use it and to draw your own conclusions.

## FACTORS OF IMPORTANCE IN THE TREATMENT OF EXOPHTHAL- MIC GOITER\*

WILLARD OWEN THOMPSON, M. D.

CHICAGO

### INTRODUCTION

It is the purpose of this paper to discuss changes which have occurred in the treatment of exophthalmic goiter since the introduction of iodine and to evaluate the rôle of iodine and other factors. As our experience increases, the uses and limitations of iodine become more and more clear cut. Our observations will be discussed under the following headings:

1. The form in which iodine is administered.

\*From the Department of Medicine, Rush Medical College, and the Presbyterian Hospital, Chicago.

\*Read before the Illinois State Medical Society at the Eighty-Second Annual Meeting Springfield, Illinois, May 18, 1932.



2. The effective dose of iodine.
3. Medical versus surgical treatment.
4. The preoperative and postoperative care.

*The Form in Which Iodine is Administered.* In this country iodine is used mostly as Lugol's solution. There is, however, no great advantage in this preparation. At the Massachusetts General Hospital in Boston Lerman and Means<sup>1</sup> have clearly shown that potassium iodide when administered by mouth and ethyl iodide when inhaled, produce as much reduction in basal metabolic rate as Lugol's solution (Chart 1)

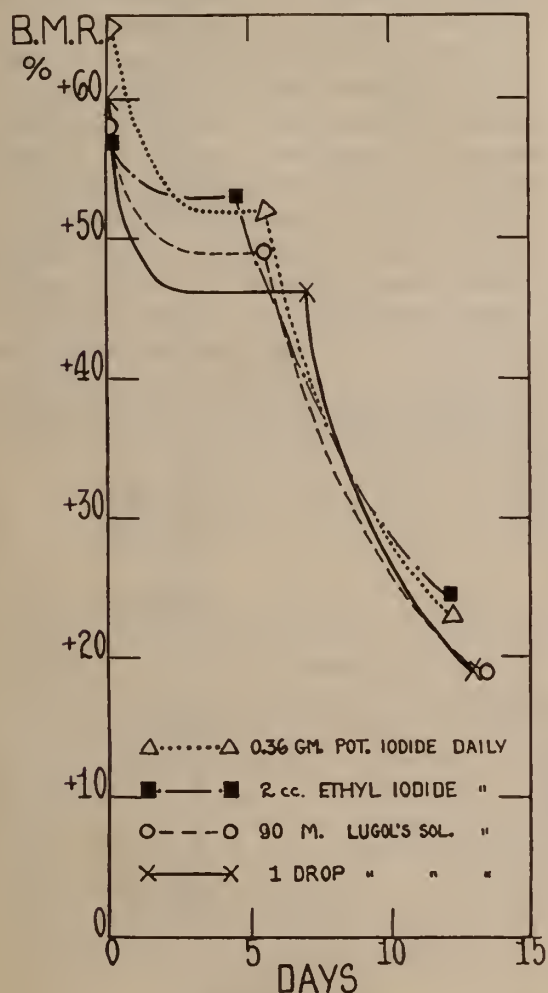


Chart 1. A comparison of the effect on basal metabolism in exophthalmic goiter in Boston of the daily administration of 0.36 gms. of potassium iodide (18 cases),<sup>1</sup> 2 cc. of ethyl iodide (24 cases),<sup>1</sup> 90 minims of Lugol's solution (14 cases)<sup>12</sup> and 1 drop of Lugol's solution (17 cases).<sup>10</sup> In each series the first point represents the average of the first metabolisms after admission to the hospital, the second point the average of the levels during rest, and the third point the average of the basal metabolism levels during the administration of iodine.

The points have been connected arbitrarily by curved lines as these represent the true course of the metabolism more nearly than straight lines.

Neisser,<sup>2</sup> Loewy and Zondek,<sup>3</sup> Jagić and Spengler,<sup>4</sup> Cowell and Mellanby<sup>5</sup> and Wahlberg<sup>6</sup> had previously demonstrated clinical improvement and reduction in basal metabolism during the administration of potassium iodide. In Montreal, Fitzgerald<sup>7</sup> has shown that hydriodic acid works as well as Lugol's solution, and Rabinowitch<sup>8</sup> that iodized jeccoleic acid works as well. At the Peter Bent Brigham Hospital, Boston, Fulton and Alt<sup>9</sup> found that sajodin (calcium iodobehenate), Lugol's solution and potassium iodide all produced about the same amount of reduction in the basal metabolism. The main thing, therefore, is to give iodine and the form in which it is administered is of little consequence. A saturated solution of either sodium or potassium iodide has certain advantages because of the small dose required.

*The Effective Dose of Iodine.* From Boston, Thompson et al.<sup>10</sup> have previously reported as much reduction in basal metabolism during the administration of 1 drop of Lugol's solution (roughly 6 mg. of iodine) daily as Starr, Segall and Means<sup>11</sup> had previously reported during the administration of 15 minims daily. In the same clinic, Lerman and Means<sup>12</sup> recently observed the effect of administering 90 minims daily to 14 patients with exophthalmic goiter. It is of interest that the reduction in these cases was almost the same as we had previously noted during the administration of 1 drop daily to 17 patients. (Chart 1.) In Chicago, the effect of administering 6 mg. of iodine daily in the form of Lugol's solution has recently been observed in 3 patients. In two there was a well marked reduction, and in one case no reduction. On the basis of these few observations, it would appear that the minimum amount of iodine necessary to produce a maximum reduction in basal metabolism is not much different in Chicago from that in Boston.<sup>13</sup> Shaw and Middleton<sup>14</sup> have noted well marked reduction during the administration of 1 minim of Lugol's solution daily in Madison, Wisconsin. At any rate, it appears to be established that the doses of iodine commonly used in the treatment of exophthalmic goiter are larger than they need be. I see no reason to modify a

statement previously made,<sup>16</sup> viz., that while the minimum amount of iodine that will always produce a maximum effect has not been determined, it is doubtful if more than 5 mims of Lugol's solution daily is ever necessary for this purpose.

*The Medical Versus the Surgical Treatment of Exophthalmic Goiter.* It is now generally agreed that in the great majority of cases, exophthalmic goiter is best treated by surgery. The chief use of iodine is, therefore, to prepare patients for operation. There are, however, two other uses: 1. As the only form of treatment in a few mild cases of the disease. 2. The treatment of mild thyrotoxicosis following a thyroidectomy. One of the main objects of treatment in exophthalmic goiter is to restore the basal metabolism to normal. In most cases this can not be accomplished by iodine alone, as a glance at carefully controlled data will show.<sup>16</sup> In moderately severe and severe cases it is hopeless to expect to control the disease satisfactorily by iodine. In mild cases, however, the basal metabolism can sometimes be reduced to the normal level and held there by the administration of iodine (Chart 2) until

the disease disappears.<sup>17</sup> Patients in whom the metabolic rate is above plus 40 per cent before treatment can rarely be satisfactorily controlled in this way. Iodine should be used for this purpose, however, only by men who have had a long experience in the treatment of toxic goiter and only provided the condition of the patient is followed with frequent determinations of the basal metabolism. The chief difficulty has been that iodine has been used not too little, but too much and is often given for such long periods that by the time the patient is referred to a hospital for operation its beneficial effects have disappeared.<sup>18</sup>

In about 10 to 20 per cent of cases in many clinics the disease persists in spite of a subtotal thyroidectomy, frequently, but not always because of inadequate surgery<sup>19</sup>. In such cases, it is the rule rather than the exception to be able to hold the metabolism depressed to a constant level at or near normal by the administration of iodine (Chart 3). In the majority of cases in which there is a large amount of palpable tissue, the metabolism can usually not be reduced to a sufficiently low level. The best general rule in cases of post-operative

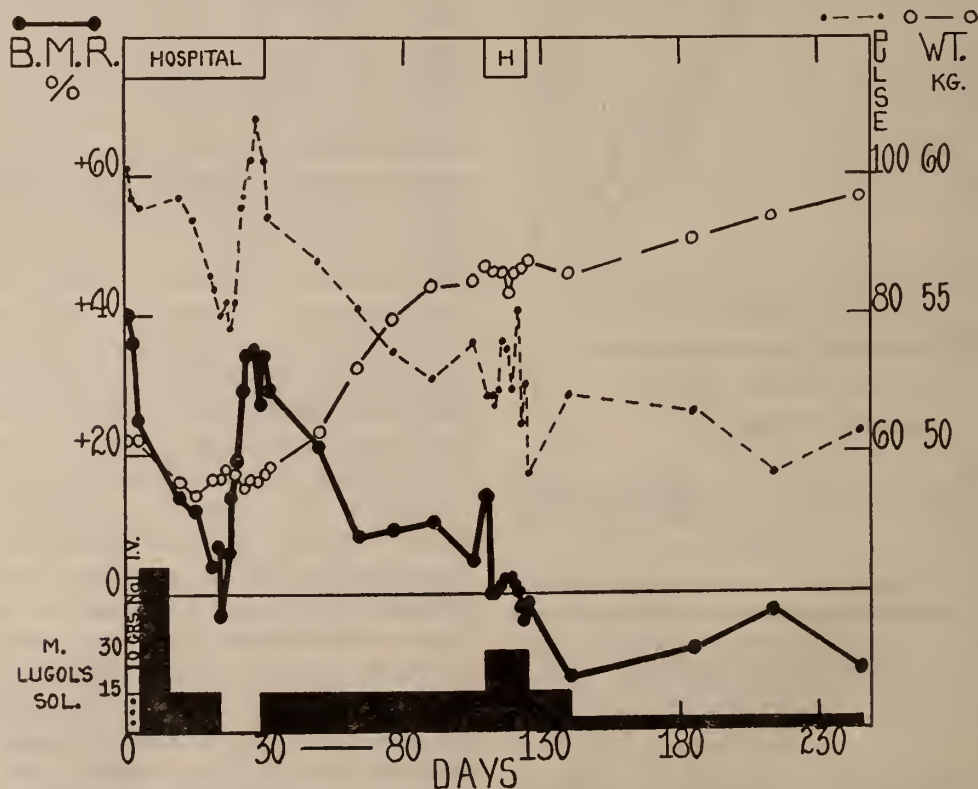


Chart 2. Mrs. E. K. Control of exophthalmic goiter during prolonged continuous treatment with iodine alone for seven months.



thyrotoxicosis is probably to try the effect of iodine and resort to further surgery in all cases in which the metabolism can not be held within the normal limits (below plus 15 per cent)<sup>19</sup>. If no further surgery is done, the disease usually lasts for years and the cooperation of the patient in the treatment with iodine is very important.

the basal requirement. This means that to make patients gain weight before operation, it is usually necessary to administer from 4000 to 5000 calories per day. A diet containing so many calories will inevitably contain enough protein to replace some of what has been lost from the body. A gain in weight before operation is a favorable prognostic sign,

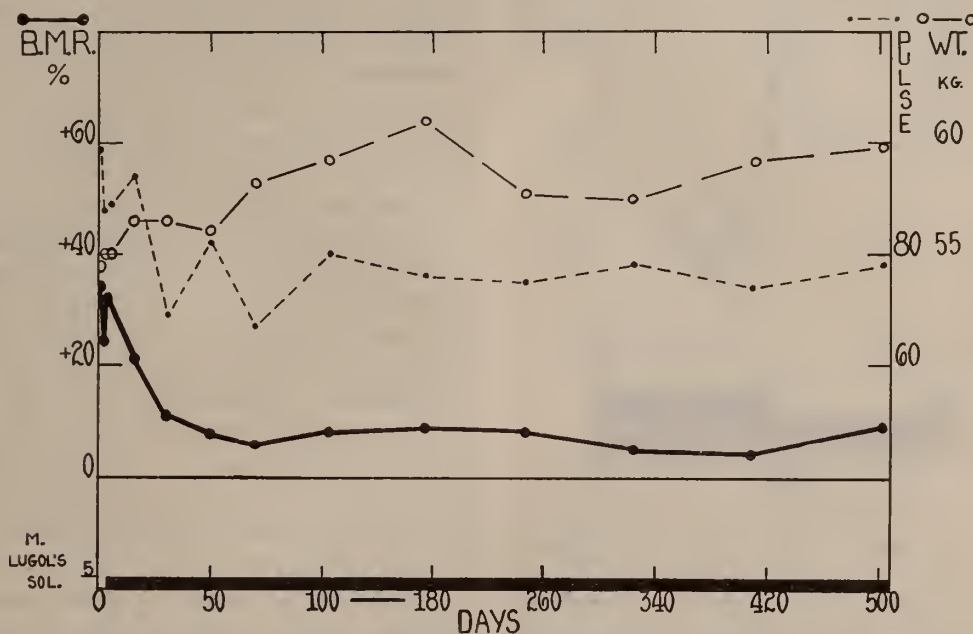


Chart 3. Mr. R. F. Control of postoperative exophthalmic goiter during prolonged continuous treatment with iodine alone for seventeen months.

In most clinics roentgen-ray treatment is used very little, largely because it is considered less effective than surgery and is more protracted. It would appear better to limit its use largely to patients who are poor risks for operation, as for example, those with postoperative thyrotoxicosis in whom there is a paralysis of one vocal cord and in whom the disease can not be controlled by iodine, and to patients who refuse operation and in whom the disease can not be controlled by iodine.

#### THE IMMEDIATE PREOPERATIVE AND POST-OPERATIVE CARE

**The Diet.** Exophthalmic goiter is a disease in which tissue is broken down at a rapid rate, so rapid that patients often lose weight in spite of a large intake of food. It is reasonable to suppose that the prevention of this loss of weight is important. Sturgis,<sup>20</sup> Boothby<sup>21</sup> and Clute and Mason<sup>22</sup> have shown that in order to accomplish this it is often necessary to give 100 per cent more calories than

even if the basal metabolism shows little reduction during the administration of iodine; but if it is coincident with a marked reduction in metabolism during the administration of iodine, the postoperative reaction will usually be mild. Four or five hours before operation a light carbohydrate meal containing a dose of iodine may be administered. If the patient vomits much after the operation, ten per cent. glucose should be administered subcutaneously and rectally by suitable methods in amounts sufficient to give the patient 3000 cc. of fluid in the first twenty-four hours following operation. This not only supplies fluid, but helps to prevent the development of an acidosis. It is important that the patient should receive food of a high caloric value as soon as vomiting ceases, because the postoperative period is one in which there is a tremendous drain on the body reserves.

**Rest.** Kessel, Lieb and Hyman<sup>23</sup> showed conclusively the marked beneficial effects of rest in

the treatment of the disease, and some reduction in basal metabolism from rest alone has been shown by various workers.<sup>24</sup> In Chart 4

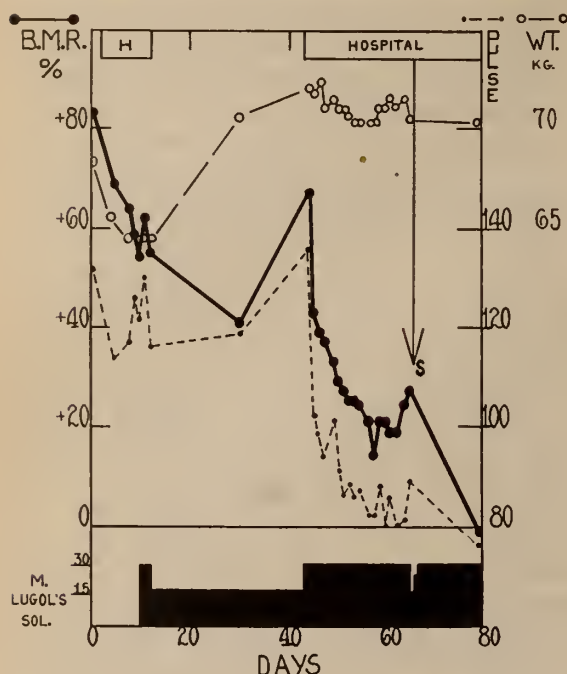


Chart 4. Miss M. K. Illustrating the importance of rest before operation in a case of exophthalmic goiter.

are recorded the data on a patient illustrating the importance of rest before operation. Just after the administration of iodine had been started it was necessary for this patient to return home for one month. During this time iodine was continued. When she returned to the hospital, although she had gained weight, her metabolic rate was as high as it had been initially, her pulse rate very rapid and emotional instability and loss of strength marked. Iodine was continued and with no change except rest in the hospital, the basal metabolism dropped from plus 67 per cent. to plus 20 per cent; her pulse from 136 to 80; and the emotional manifestations of the disease became less marked. With rest, she was converted from a poor operative risk into a satisfactory one. Many similar observations have led us to believe that it is wise to carry out all of the preoperative preparation of the patient in the hospital. If it is done at home, the two important factors of diet and rest can not be adequately controlled. The more prolonged period of hospitalization before operation also allows the patient to become accustomed to the atmosphere of the hospital.

Except in the presence of a crisis, cardiac decompensation or an acute infection, it is not necessary that the patient be completely confined to bed.

*Selection of the Time and Type of Operation.* The maximum reduction in basal metabolism during the administration of iodine occurs in from 7 to 8 days on the average.<sup>13</sup> However, maximum reduction in metabolic rate does not usually coincide with maximum clinical improvement. A patient has not completely recovered from the ill effects of pneumonia by the time his temperature is normal. The danger of delaying operation beyond the time of maximum reduction in basal metabolism has, in our opinion, been overemphasized. It is very rare that it is unwise to wait one week beyond this time, and, in the majority of cases, it is safe to wait from two to three weeks longer.<sup>25</sup> During this time, the patient has an opportunity to gain weight, rest, and otherwise derive the benefits of the lowered metabolic rate. The cases in which any difficulty is liable to be encountered by delaying operation a short time are the very severe cases, just the ones which need rest most.

It is unwise to operate when the metabolism is rising rapidly, whether iodine is being administered or not; and also if the metabolism is at a high level after the prolonged administration of iodine.<sup>26</sup> In both types of case the patient is partially or completely refractory to iodine, and it is best to omit this medication for at least four weeks to allow this refractoriness to disappear, and then readminister iodine before operation. We<sup>27</sup> have previously reported the case of a patient who was operated on after his metabolism had risen rapidly to a high level during a comparatively short period of iodine administration. He died of a thyroid crisis 40 hours after operation. On the other hand, we<sup>28</sup> have also reported patients who had become refractory to iodine but who, after a period of omission of iodine, responded to it well again and had uneventful convalescences from their operations. Absence of reduction in basal metabolism during the administration of iodine is, in our experience, not necessarily a bad prognostic sign unless it is combined with marked emotional instability.

The evidence available shows that ligation



of one or both superior thyroid arteries does not affect the basal metabolism to any great extent.<sup>28</sup> Therefore, about the only possible rôle of ligations at the present time is to test the ability of certain doubtful cases to withstand operation. It should be done only rarely. There is some difference of opinion as to whether the strain of operation is diminished by doing only a hemithyroidectomy instead of a subtotal resection. Indeed Richter<sup>29</sup> believes that the degree of postoperative reaction is to some extent dependent upon the amount of tissue left at operation. The majority of surgeons, however, favor the idea that the less extensive the thyroidectomy, the less severe the postoperative reaction. At the Lahey Clinic it was possible to reduce the mortality markedly by doing the thyroidectomy in more than one stage in all cases in which there was any doubt about the ability of the patient to withstand operation.<sup>30</sup> While such a procedure causes many needless operations, it has saved many lives in Lahey's hands. There is much truth in Lahey's idea that the time to decide how extensive the thyroidectomy should be is when the patient is first seen and the severity of the thyrotoxicosis determined.<sup>31</sup> It appears certain that the time to decide this is not during the operation. I have seen operations halted because of a rising pulse rate, only to have the patients experience an uneventful convalescence. On the other hand, I have seen patients go through operation in a very satisfactory manner, only to die of an intense thyroid reaction a short time afterward. A case in point is the one previously referred to as having died following operation performed when he was refractory to iodine.<sup>27</sup> The first time this patient was taken to the operating room his pulse rate rose to 160 and it was thought best not to carry out any operative procedures. A few days later a hemithyroidectomy was done and he appeared to stand the actual operative procedures fairly well.

Two deaths which we have had recently in the Presbyterian Hospital illustrate this point.

Miss D., 32, a 17 year old school girl, was first seen April 26, 1930, when her basal metabolism was plus 51 per cent., her pulse 112 and her weight 48.9 kg. She persistently refused operation. On July 21, 1930, when her basal metabolism was plus 53 per cent., the administration of 5 drops of Lugol's solution daily was begun. This produced a slight reduction in metabolic

rate to plus 37 per cent. by August 1, 1930. This drop was only temporary and on October 4 when her metabolism was plus 57 per cent, she omitted iodine. Her metabolism quickly rose to plus 89 per cent. by October 21. She finally consented to be operated upon. November 8, just after admission to the hospital, her metabolic rate was plus 108 per cent. her pulse 125 and her weight 51.4 kg. With rest and iodine her metabolism dropped to plus 32 per cent. by November 24, her pulse to 71 but her weight also dropped slightly to 50.2 kg. A subtotal thyroidectomy was done November 28. In this patient emotional instability was marked, and although subdued by treatment, persisted up to the time of operation. She continued to move about somewhat erratically and to change from weeping to laughter on rather slight provocation. The patient having requested it, it was decided to proceed with operation without telling her. However, she suspected that the preliminary hypodermic injection of morphine meant that an operation was coming and she began to weep violently. She quieted down after we had talked to her, but wept a little more on arriving in the operating room. After the anesthesia was started, she quieted down again and her response to operation was excellent. At no time during operation did her pulse rate rise above 88. Yet she died 48 hours afterward of an intense thyroid reaction.

The other case was that of a man of 50 who was started on iodine two and one half weeks before admission to the hospital. His metabolism before iodine was administered was plus 46 per cent. and on October 15, 1931, just after admission to the hospital it was plus 33 per cent. Iodine was continued but his metabolism did not change significantly. His weight increased from 62.3 kg. to 64.7 kg. and the nervous manifestations of the disease diminished somewhat, but were still well marked. At the time of operation, so severe did his thyrotoxicosis seem to be that the possibility of doing a ligation to test his response was considered. He took the anesthesia so well, however, that the surgeon decided to do a subtotal thyroidectomy, to which the patient's response was apparently satisfactory. Nevertheless, he did poorly from the time he recovered from the anesthetic, the outstanding abnormalities being restlessness, tachycardia, and irrationality. He died about 30 hours after operation of a thyroid crisis complicated by bronchopneumonia. It is, of course, very easy to see mistakes after they are made, but one is led to wonder whether death in both of these patients might not have been avoided by less extensive surgery.

The severity of the postoperative reaction appears to be roughly proportional to the intensity of the nervous manifestations of the disease, and this possibly should be the single most important criterion in gauging the extent of a thyroidectomy. In any event, its extent should be determined by one who has carefully followed the response of the patient to treatment, and should only rarely be determined during the course of the operation.

The limitations of iodine are gradually becoming apparent. While it represents a great advance, and we should not care to do without it, it must not be relied upon too greatly. Lahey<sup>31</sup> has clearly pointed out how one may be led to do a complete thyroidectomy by a satisfactory response to iodine, only to have the patient die in intense thyroidism. Iodine has reduced the number of postoperative reactions, but it has not abolished them.<sup>32</sup> Hence the patient should be given the benefit of everything that may contribute to a successful recovery from operation.

The presence of auricular fibrillation without any evidence of heart failure is not necessarily a contraindication to a radical thyroidectomy, although it increases the risk of operation somewhat. In my opinion, it is regarded too seriously. Transient auricular fibrillation in the immediate postoperative period need not be taken very seriously in the absence of other untoward signs. Whether digitalis is of value in the treatment of the auricular fibrillation that accompanies thyrotoxicosis is still unsettled. Plummer<sup>33</sup> thinks it does harm, while others, e. g., Hurxthal<sup>34</sup> and Baker et al.<sup>35</sup> consider it of great value.

The operation should result in the removal of an amount of tissue sufficient to reduce the basal metabolism to the standard normal level. In the majority of cases this is best accomplished by removing as much as is consistent with preserving the integrity of the parathyroid glands and recurrent laryngeal nerves. There is no doubt that the percentage of postoperative thyrotoxicosis depends to some extent upon the amount of tissue removed at operation. However, we feel that this point of view may be carried to an extreme and think so-called complete thyroidectomies are both unnecessary and dangerous; nor is myxedema the goal of thyroid surgery. If the operation is properly done, a certain amount of persistence of the disease is unavoidable. The skill of the surgeon is important. It is only necessary to state that the best surgeons had a mortality as low as 1 per cent. before the days of iodine, while others commonly had a mortality as high as 10 per cent.<sup>32</sup>

Examination of the vocal cords should be made routinely before and after operation. While a paralysis is usually evident, in a few

cases only slight hoarseness is caused and the paralysis escapes recognition unless the larynx is examined.

After operation, the patient should be carefully followed for a long time. There are certain facts which have been established to be of value in prognosis. If the basal metabolism is plus 15 per cent. or higher at the time of discharge from the hospital—roughly ten days after operation—and if the patient is receiving iodine, it is probable that the disease is still present. On the other hand, a normal metabolism under these circumstances does not mean that the disease has been abolished. Exophthalmic goiter rarely recurs, but commonly persists after operation. Therefore, if a patient has a normal metabolism for as long as a month when he is not taking iodine, it is unlikely that he will ever have the disease again.

So far as is known, iodine acts only on the thyroid gland and is unable to affect the secretion after it leaves the gland. The only reason for giving it after operation is to control any thyrotoxicosis which may be produced by the remnant of the gland. It is, therefore, probably of little value except in those cases in which the disease has not been abolished by operation. Since it is impossible to distinguish such cases from others in the immediate postoperative period, iodine should be given until discharge from the hospital. Thereafter, it is indicated only for the control of postoperative thyrotoxicosis. Data previously published show that the administration of iodine following operation does not prevent the persistence of the disease.<sup>19</sup>

A small group of patients has previously been reported who were mildly thyrotoxic following operation in spite of the presence of a normal basal metabolism, and who felt much improved when iodine was administered and the metabolism dropped to a subnormal level.<sup>36</sup> However, while thyrotoxicosis may be present in spite of a normal basal metabolism, it is wise to make such a diagnosis only after very careful study of the patient.

From what has been said, it seems fair to say that exophthalmic goiter is primarily a medical disease in which surgery should be regarded as an important incident.



## SUMMARY

1. The form in which iodine is administered in exophthalmic goiter does not matter.

2. The effective dose of iodine is much smaller than that ordinarily employed.

3. Although iodine is very important, too much dependence must not be placed on it. It has reduced the number of deaths from postoperative crises but has not abolished them. Therefore, everything which is known to act favorably on the disease should be used to augment the effect of iodine, e.g., a high caloric diet and rest.

4. The patient should be prepared for operation in the hospital and not at home.

5. Operation should never be performed when the metabolism is rising rapidly, whether iodine is being administered or not.

6. Gain in weight and well marked reduction in basal metabolism during the administration of iodine indicate that the postoperative reaction will probably be mild.

7. One of the most important factors in determining the ability of the patient to withstand a subtotal thyroidectomy appears to be the intensity of the nervous manifestations of the disease.

8. In all doubtful cases, the operation should be done in at least two stages.

9. The extent of the thyroidectomy should be determined by the initial severity of the disease and the response of the patient to treatment and only rarely by the pulse rate during operation.

10. Auricular fibrillation in the absence of other untoward signs is not a contraindication to a subtotal thyroidectomy.

11. While the most important use of iodine is to prepare patients for operation, in a few mild cases it will control the disease indefinitely, and in many cases in which the disease persists following a subtotal thyroidectomy, it may be controlled by iodine until it disappears.

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## BIBLIOGRAPHY

1. Lerman, J. and Means, J. H.: Iodin in exophthalmic goiter. A comparison of the effect of ethyl iodid and potassium iodid with that of Lugol's solution, *Am. J. Med. Sci.*, 181, 745, 1931.  
 Lerman, J. and Means, J. H.: unpublished data: see Thompson, W. O. and Means, J. H.: A comparison of exophthalmic goiter in Boston and Chicago, with special reference to the Iodine Reaction, *J. A. M. A.*, 99, 1483, 1932.  
 2. Neisser, E.: Ueber Jodbehandlung bei Thyreotoxikose, *Berl. klin. Wehnschr.*, 57, 461, 1920.  
 3. Loewy, A. and Zondek, H.: Morbus Basedowii und Jodtherapie, *Deutsche med. Wehnschr.*, 47, 1387, 1921.

4. Jagic, N. and Spengler, G.: Weitere Beobachtungen über Jodwirkung bei Strumen, *Wien. klin. Wehnschr.*, 37, 116, 1924.  
 5. Cowell, S. J. and Mellanby, E.: The effect of iodine on hyperthyroidism in man, *Quart. J. Med.*, 18, 1, 1924-25.  
 6. Wahlberg, J.: Das Thyreotoxikosensyndrom und seine Reaktion bei kleinen Joddosen, *Helsingfors, Mercators 'Tryckeri Aktiebolag*, 1926.  
 7. Fitzgerald, R. R.: A comparative study of the effect of two different preparations of iodine upon the preoperative basal metabolic rate in exophthalmic goitre, *Canadian Med. Assoc. Jour.*, 16, 159, 1926.  
 8. Rabinowitch, I. M.: The effect of iodine treatment, with and without vitamins, on the basal metabolic rate in exophthalmic goitre, *Canadian Med. Assoc. Jour.*, 21, 156, 1929.  
 9. Fulton, M. N. and Alt, H. L.: The comparative effect of different iodine preparations in the preoperative treatment of thyrotoxicosis, *New England Jour. Med.*, 203, 327, 1930.  
 10. Thompson, W. O., Brailey, A. G., Thompson, P. K. and Thorp, E. G.: The range of effective iodine dosage in exophthalmic goiter. I. The effect on basal metabolism of rest and of the daily administration of one drop of compound solution of iodine, *Arch. Int. Med.*, 45, 261, 1930.  
 Thompson, W. O., Thorp, E. G., Thompson, P. K. and Cohen, A. C.: The range of effective iodine dosage in exophthalmic goiter. II. The effect on basal metabolism of the daily administration of one-half drop of compound solution of iodine, *Arch. Int. Med.*, 45, 420, 1930.  
 Thompson, W. O., Cohen, A. C., Thompson, P. K., Thorp, E. G. and Brailey, A. G.: The range of effective iodine dosage in exophthalmic goiter. III. The effect on basal metabolism of the daily administration of one-quarter drop of compound solution of iodine and slightly smaller doses with a summary of results to date, *Arch. Int. Med.*, 45, 430, 1930.  
 Thompson, W. O., Thompson, P. K. and Cohen, A. C.: The range of effective iodine dosage in exophthalmic goiter. IV. The effect on basal metabolism of the daily administration of about 0.75 mg. of iodine, *Arch. Int. Med.*, 49, 199, 1932.  
 11. Starr, P., Segall, H. N. and Means, J. H.: The effect of iodine in exophthalmic goiter, *Arch. Int. Med.*, 34, 355, 1924.  
 12. Lerman, J. and Means, J. H.: Reference 1, part 2.  
 13. Thompson, W. O. and Means, J. H.: Reference 1, part 2: Thompson, W. O. and Thompson, P. K.: Recent observations on the iodine reaction in exophthalmic goiter, *Endocrinology*, 14, 393, 1930.  
 14. Shaw, G. W., and Middleton, W. S.: Personal communication.  
 15. Thompson, W. O. et al.: Reference 10: part 1 and reference 13: part 2.  
 16. Thompson, W. O., Thompson, P. K., Brailey, A. G. and Cohen, A. C.: Prolonged treatment of exophthalmic goiter by iodine alone, *Arch. Int. Med.*, 45, 481, 1930: . . . Thompson, W. O. and Means, J. H.: reference 1, part 2: . . . Means, J. H., Thompson, W. O. and Thompson, P. K.: On the nature of the iodine reaction in exophthalmic goiter, with particular reference to the effect of iodine late in the course of the disease, *Trans. Assoc. Amer. Physicians*, 43, 146, 1928. Collier, F. A. and Potter, E. B.: Reaction to iodine of goiters from a goiter area, *Am. J. Surg.*, 6, 609, 1929.  
 17. Thompson, W. O. et al: reference 16, part 1.  
 18. Jackson, A. S.: Diseases of the thyroid gland, *Wisconsin Med. Jour.*, 29, 327, 1930.  
 Frazier, C. H. and Mosser, W. B.: End-results from the surgical treatment of hyperthyroidism, *J. A. M. A.*, 90, 657, 1928.  
 Graham, A.: Preoperative iodine therapy in toxic goiter; indications and limitations, *Am. J. Surg.*, n.s., 2, 354, 1927.  
 Goetsch, E.: The use and misuse of iodine in the treatment of toxic goiter; *N. Y. State J. Med.*, 27, 1075, 1927.  
 19. Thompson, W. O., Morris, A. E. and Thompson, P. K.: Thyrotoxicosis following subtotal thyroidectomy for exophthalmic goiter, *Arch. Int. Med.*, 46, 946, 1930.  
 20. Sturgis, C. C.: Observations on one hundred and ninety-two consecutive days of the basal metabolism, food intake, pulse rate and body weight in a patient with exophthalmic goiter, *Arch. Int. Med.*, 32, 50, 1923.  
 21. Boothby, W. M.: Diagnosis and treatment of the diseases of the thyroid gland; *Oxford Medicine*, Volume III, part II, p 883.  
 22. Clute, H. M. and Mason, R. L.: Medical management of patients before operation for hyperthyroidism, *S. Clin. N. America*, 6, 583, 1926.  
 23. Kessel, L., Lieb, C. C. and Hyman, H. T.: Study of exophthalmic goiter and the involuntary nervous system: IX. An estimation of the pathogenesis and the evaluation of therapeutic procedures in exophthalmic goiter, *J. A. M. A.*, 79, 1213, 1922.  
 24. Means, J. H. and Aub, J. C.: A study of exophthalmic goiter from the point of view of the basal metabolism with remarks concerning the effect of various forms of treatment, *J. A. M. A.*, 69, 33, 1917.  
 Goodwin, G. M.: Effect of administration of Lugol's solution on twelve consecutive cases of exophthalmic goiter, *N. Y. State J. Med.*, 29, 1189, 1929.  
 Thompson, W. O. and Means, J. H.: Reference 1, part 2.  
 Thompson, W. O. et al. reference 10.  
 Sturgis, C. C. reference 20.  
 25. Richter, H. M.: personal communication.  
 26. Thompson, W. O. and Thompson, P. K.: Exophthalmic goiter: the development of refractoriness to iodine, *Arch. Int. Med.*, 48, 351, 1931.  
 27. Thompson, W. O. and Thompson, P. K.: reference 26.  
 Mallory, T. B., Means, J. H. and Young, E. L.: Exophthalmic goiter and acute rheumatic fever, case No. 15472, *New England J. Med.*, 201, 1056, 1929.  
 28. Richardson, E. P. and Means, J. H.: Results of surgery and of surgery combined with Roentgen-ray treatment in ex-

- ophthalmic goiter, *Arch. Surg.* 9, 237, 1924. Means, J. H. and Richardson, E. P.: *Diseases of the Thyroid*, Oxford Monographs on Diagnosis and Treatment, Vol. IV. p. 200. Oxford University Press, New York, 1929.
29. Richter, H. M.: Thyroidectomy, *Surg. Gyn. & Ob.* 49, 67, 1929.
30. Clute, H. M.: The operative mortality in hyperthyroidism. *J. A. M. A.* 95, 389, 1930.
31. Lahey, F. H.: The use of iodine in goiter. *Bost. Med. & Surg. J.* 193, 487, 1925.
32. Thompson, W. O. and Thompson, P. K.: Fallacies and dangers in the treatment of exophthalmic goiter by iodine, *Annals of Int. Med.* 5, 1129, 1932.
33. Plummer, H. S.: Personal communication.
34. Hurxthal, L. M.: Personal communication.
35. Barker, P. S., Bohning, A. L. and Wilson, F. N.: Auricular fibrillation in Graves' disease. *American Heart Journal* 8, 121, 1932.
36. Thompson, W. O. and Thompson, P. K.: Low basal metabolism following thyrotoxicosis. I. Temporary type without myxedema, with special reference to the role of iodine therapy. *J. Clin. Investigation.* 5, 441, 1928.

### DISCUSSION

Dr. Paul Starr, Chicago: I think that Dr. Thompson did a great deal by bringing out one fundamental fact, and that is that there is a quantitative element in the administration of iodine to hyperthyroid patients. Up until his definite work I think that there was a general feeling that iodine might have a drug action which was qualitative, but he has very definitely shown that there are quantitative limits and that there will be a definite failure of the disease to respond if the dose is minute enough. Of course, the average dose of Lugol's solution of 15 minims contains 125 milligrams of iodine, and he has shown that the effective dosage is within the range of a few milligrams—five or six, or even less.

I would like to ask him whether in his experience there may not be the converse of that quantitative relation—that is, in the extreme thyroid crisis, of which we have described two thermal types in which we gave nearly a gram or more of iodine, in other words 1000 or 1500 milligrams, whether excessive amounts of iodine are not valuable.

Dr. Frank Deneen, Bloomington: I am glad to hear Dr. Thompson speak of the use of iodine, and undoubtedly it has been greatly over-rated. You must not forget that exophthalmic goiter, the same as toxic adenoma, varies from day to day; and that in giving iodine we are apt to give credit to iodine when the variations are simply due to the cause of the disease. We still have the postoperative crisis, although it is less common now than before the introduction of iodine, and we must not forget that in addition to iodine we are using much more glucose and fluid by mouth, by rectum, and intravenously. In using the glucose we must not forget that we are furnishing the body with an exogenous fuel instead of an endogenous fuel.

In following the basal rate from day to day, and even at different times of the day, we will find that it will vary with the patient. We must not forget that if we put thyroid patients to bed, a large number of them will improve in the same way as when giving them iodine. By the use of an ice collar sometimes around the neck, an ice-pack over the heart, you will see the same response that we do to iodine.

There is no doubt that we have gone to great extremes in giving iodine credit to which it was never entitled.

When it comes to persistence of symptoms of exophthalmic goiter I think that practically all of them do have a persistence of symptoms, and that following

subtotal thyroidectomy of the exophthalmic type you get quieting down, and then in the course of a week to a few weeks there is an increase of symptoms again that tend to decrease even without the use of iodine; but on the whole there is a persistence of symptoms until all the gland is removed in the vast majority of exophthalmic cases.

One must not forget that exophthalmic goiter probably is not one and the same disease as toxic adenoma, and you are more apt to have a thyrotoxicosis following operation upon an exophthalmic goiter than you are on toxic adenoma.

Dr. Willard O. Thompson, Chicago: In regard to Dr. Starr's question, it seems to me that there are no well controlled data available. There are statements in the literature to the effect that very large doses (90 to 100 minims of Lugol's solution daily) are sometimes effective when doses of the usual size (30 minims daily) are ineffective. I know of no such statement that is supported by adequate data. We have observed a few cases in which a dose of 6 mgms. of iodine daily did not produce a maximum reduction in basal metabolism, whereas larger doses did. The minimum dose that will always produce a maximum reduction in basal metabolism has not been determined. In my opinion, it is doubtful if it is ever more than 5 minims of Lugol's solution daily, even in a thyroid crisis, although this is stated merely as a suggestion and not as an established fact. In a crisis, the physician may become desperate and do everything that might possibly be imagined to have an effect, including the administration of very large doses of iodine. If improvement occurs it is attributed to the large dose of iodine.

I should like to call attention to the fact that Dr. Starr wrote an excellent paper on the course of exophthalmic goiter during treatment with iodine, in which he illustrated certain important points about changes which occur during its prolonged administration.

I should also like to point out that there is no question that iodine is of great value, and I trust that any statement I made about its ineffectiveness under certain circumstances will not be misinterpreted. I was merely making a plea for a more precise definition of the effects of iodine and a realization of what it will not do as well as what it will do. This in no way detracts from its importance. I think that the introduction of iodine in the treatment of exophthalmic goiter is one of the most important therapeutic advances in recent times.

### TAKE NO CHANCES

A jockey was suddenly taken ill, and the trainer advised him to visit a doctor in the town.

"He'll put you right in a jiffy," he said.

The same evening he found Benjamin lying curled up in the stables, kicking his legs in agony.

"Hello, Benny! Haven't you been to the doctor?"

"Yes."

"Well, didn't he do you any good?"

"I didn't go in. When I got to his house there was a brass plate on his door—'Dr. Kurem. Ten to one'—I wasn't going to monkey with a long shot like that!"



## MATERNAL MORTALITY AND COMMON SENSE

ANDY HALL, M.D.

State Health Director  
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To begin a crusade against crime by branding the clergy as high priests of evil and by declaring that churches are a shelter for the altars of iniquity would hardly seem logical. Destroying public faith in preachers and the church by cleverly portraying as present-day faults the ecclesiastical sins of pre-Reformation days does not appeal to even that homeless wandering itinerant, the man in the street, as the best way to attack the sources from which crime springs. To pick out the isolated treasurers of churches and other religious organizations who have defaulted and embezzled as the point upon which to center a campaign for economic reform has no profound appeal to reason.

This, however, is exactly the position taken by Paul de Kruif concerning the health of mothers and the risks of maternity in an article which appeared in the March 1932 issue of the "*Ladies' Home Journal*". Although the ethical medical profession and our hospitals are the very best institutions we have for safeguarding the health of mothers at the time of childbirth and in spite of the fact that they seek constantly to improve their art and to convert people to take advantage of the remarkably efficient facilities they have to offer, the article by de Kruif certainly promotes skepticism if not actual destruction of faith in the medical profession and hospitals so far as obstetrics are concerned. Worse still, there is no statistical evidence, at least in Illinois, to support the statements upon which he bases his accusations and fears.

Furthermore, child-bed fever, the subject of the de Kruif article, is a minor health risk under modern conditions in respect to ultimate consequences to mother, child and race compared with such things as syphilis, tuberculosis and poor racial stock. All of these things are involved in reproduction and are susceptible to a large degree of control. While child-bed fever, erroneously so-called in about one-half of the fatal cases, caused less than 200 deaths in Illinois during 1930, over one-half of which had no relation to obstetrical care be-

cause they were preceded by abortion, tuberculosis caused 1,402 among women of child bearing age (15 to 44 years inclusive) and left over 10,000 active cases alive among this group of women to spread the disease to children. Syphilis is certainly widely prevalent. This disease is present in a far greater number of mothers than child-bed fever ever attacks, and probably is the inciting cause of involuntary abortion in many instances. Here are two specific problems of large magnitude and susceptible to solution over which an able writer like de Kruif might profitably spend some thought and effort.

Now for the statistics. De Kruif says:

"Even in our land, where child-bed fever is the worst medical scandal. . . ."

Well, in 1930, a typical year and the most recent for which detailed statistics are available, there were 199 deaths in Illinois ascribed to child-bed fever or puerperal septicemia as this condition is technically called. Out of that number 107 or 54 per cent. were preceded by abortion which was admittedly self-induced in 35 cases. Abortion not only creates the most favorable conditions for the onset of septicemia but usually requires medical procedures which increase far above normal delivery the risk of septicemia. Furthermore, a case of abortion has no more relation to obstetrics than does a case of appendicitis or hernia.

The other 92 of the 199 fatalities from puerperal septicemia in 1930 were scattered through 39 counties. Furthermore, the mother was attended at the time of childbirth by someone not a physician in one out of each ten cases where septicemia resulted in death of mothers who went through the full term of gestation. After making allowance for all of these things the risk of fatal puerperal septicemia in Illinois in 1930 among patients attended by licensed physicians is reduced to 81 out of 129,937 mothers who gave birth to living and 4,324 who gave birth to stillborn children, a matter of less than 1 per 1,600 cases of confinement. Manifestly, human nature being what it is, the loss of 81 out of 134,261 mothers whose experiences involved the obstetrical services of some 7,500 out of the 11,382 licensed physicians in Illinois could not by any stretch of the imagination be branded as a "medical scandal."

The Illinois statistics are not peculiar in

respect to abortion as a very great factor in deaths registered against puerperal septicemia. Miss Grace Abbott, chief of the United States Children's Bureau, who of all people in the country would be most anxious to put her finger on the principal causes of child-bed fever, pointed out in an address delivered before a meeting of state and territorial health commissioners at Washington, April 29, 1931, that:

The study of maternal mortality made by 15 states and covering all the deaths from puerperal causes within 13 states for the two years 1927 and 1928, and within 2 states for the one year 1928 shows that of the 7,380 deaths due to strictly puerperal causes, abortions preceded 1,824, or 25 per cent. of the whole number of deaths. Puerperal septicemia was the cause of 1,324 or 73 per cent. of the 1,824 deaths following abortions. Seven hundred and ninety-four deaths followed induced abortions. Of this number 722, or 91 per cent. were due to puerperal septicemia. Forty-five per cent. of all deaths included in the study assigned to puerperal septicemia in the states and the years of the study were preceded by abortions, and induced abortions caused one-fourth of all the deaths assigned to puerperal septicemia. Clearly, the conclusions are that appreciation of the dangers of induced abortions would reduce by approximately one-fourth the total number of deaths (2,948) from puerperal septicemia.

Again, de Kruif, in speaking of the splendid work and observations of Dr. J. B. DeLee, makes the following statement:

"In all the general hospitals he's worked in he has seen child-bed fever. DeLee comes right out flat-footed telling of present disasters in general hospitals, whispered about among doctors, never heard of by us plain folks. In this class-A general hospital an outburst of child-bed fever with ten cases stricken, six gravely, three dying. In that one twenty cases—six dying. And so on all over."

The last statement is literally not true. Outbreaks of child-bed fever in general hospitals are not frequent nor do they occur "all over." In the days of Semmelweis and of Oliver Wendell Holmes, on whom de Kruif leans heavily for his statements, and even somewhat later there might have been ample grounds for that statement but not today. Illinois statistics are clear and unequivocal on this point. Of the 199 deaths charged against child-bed fever, 76 occurred in Chicago and 123 down-State. Among those in Chicago 37 were preceded by abortion, a fact not only testified to on the death certificate but also by the name of the coroner who signed each of these 37 certificates. Four of the other 39 took place in homes, 1 on

the way to a hospital and 34 in 25 different hospitals. Nineteen of these hospitals had one death each and one of these twenty was the Chicago Lying-In Hospital, which de Kruif correctly held up as a model. Four of the hospitals had two each with no two in any hospital occurring within two months of each other. At the Cook County Hospital, which accepts only charity patients of whom a large percentage are colored and which has on its attending staff the ablest physicians in Chicago, there were 7. Four of these occurred at dates separated by more than a month each. Three occurred during the month of September. One of these three required an operation that opened up the whole abdomen and another of the three had an infection to which the puerperal septicemia might well have owed its beginning. The third involved a stillbirth, the certificate of which was signed by a physician who designated nephritis and hypertension as the cause of the stillbirth. Another physician signed the death certificate of the mother. Thus arises a question as to whether child-bed fever was involved at all in this third of the three September deaths attributed to puerperal septicemia. Certainly there was no "outburst" of puerperal septicemia. Furthermore, no physician except a resident physician at the Cook County Hospital whose business is to handle emergencies signed more than one of the 34 certificates which relate to deaths that may be justifiably said to have involved child-bed fever and which occurred in hospitals. Thus in Chicago, where 68 per cent. of the births took place in hospitals, the evidence is clear that no "outburst" of child-bed fever occurred in any hospital and no "medical scandal" enshrouded the experiences of motherhood.

As for the 123 down-State deaths, 84 occurred in hospitals and 39 in homes. Of the 84 that took place in hospitals, 49 were preceded by abortion and 13 of the mothers among the other 35 had given birth to children at home and had been removed to hospitals only after complications developed. This leaves only 22 deaths attributed to puerperal septicemia which involved in any way the obstetrical services that was obtained in the hospitals. How many of the 22 maternity patients had developed complications before being removed to the hospitals for delivery could not be ascertained from the certificates. There were, however, 5



who required surgical operations and 7 others in whom there were complicating conditions other than septicemia and which may have been important factors in bringing on septicemia. This reduces to 9 the number of deaths from septicemia which occurred among apparently uncomplicated maternity cases in down-State hospitals during 1930 and there were 25,870 live births which occurred in down-State hospitals that year. This is a risk of a trifle more than 1 per 3,000 cases.

The 84 deaths attributed to puerperal septicemia which occurred in down-State hospitals were distributed among 62 different hospitals. There were 42 hospitals which had one each including those preceded by abortion. There were 15 hospitals which reported two each but in 8 of these, one or both deaths were preceded by abortion and more than a month elapsed between the time of death of the two cases in each of the other seven hospitals. There were four hospitals, each of which reported 3 deaths from puerperal septicemia during 1930. All three deaths were preceded by abortion in two of these hospitals. One of the three deaths in another was preceded by abortion and the other two occurred several months apart. In the fourth hospital, two of the three deaths were of patients who had given birth to children and developed child-bed fever at home before removal to the hospital. Furthermore, these three deaths occurred respectively in February, August and November.

In the homes of Illinois exclusive of Chicago there occurred 39 deaths among women attributed to puerperal septicemia. But there were 13 deaths from this cause in the down-State hospitals of women who had given birth to children in their homes before being removed to the hospitals. These 13 make a total of 52 deaths chargeable to conditions which developed in the homes and to which the hospital obstetrical facilities had no relation whatever. Among the 52 were 12 patients who had experienced abortion, 2 who had suffered from miscarriage and 2 whose babies were stillborn. This reduces to 36 the number of deaths from septicemia among apparently uncomplicated maternity cases which involved home care of the mother at the time of birth. Since 45,984 live births occurred in the homes the number of deaths was at the rate of about 1 per 1,278 live births. However, there were two cases in

which the mother had no medical service so the risk of fatality where medical obstetrical service was concerned falls somewhat. In other words the risk of fatal child-bed fever among mothers whose babies were born in hospitals was less than one-half what it was among those who stayed at home for this important event.

As in the Chicago experience, only one down-State physician, exclusive of coroners, signed more than one certificate of death on which puerperal septicemia was designated as a factor. This physician signed two. The fatal condition of one of these two patients was preceded by a miscarriage which involved an infection independent of the septicemia.

In the light of these data it seems clear that no "outburst" of child-bed fever occurred in any hospital in Illinois during 1930 although 65,340 births took place in the hospitals of the State in that year. Nor was 1930 an exceptional year. This is shown by an analysis of the statistics for a period of five years for the seven cities of Chicago, Decatur, Evanston, Oak Park, Peoria, Rockford and Springfield where practically 70 per cent. of all births occur in hospitals. In these cities where an aggregate of 350,895 births occurred during the five years of 1926-1930, the deaths attributed to child-bed fever, including those preceded by abortion, were at the rate of 2.2 per 1,000 live births. In the State exclusive of these cities where an aggregate of 313,108 took place during the five year period, 72 per cent. of which occurred in the homes, the death rate from child-bed fever was exactly the same, 2.2 per 1,000 live births. This completely absolves hospitals as incubators of child-bed fever.

Again, de Kruif says:

"If they all—like Semmelweis—cared down deep, about these mothers dying. Then there'd be no excuse, no alibi."

No physician enjoys signing a death certificate, least of all one that might cast reflection upon his professional efficiency or skill. If for no other reason, selfishness pure and undefiled, drives him for the sake of a livelihood to do all that he can to prevent a death. There are 11,382 physicians (1930 figures) licensed to practice medicine in Illinois and it seems reasonable to estimate that two thirds of these, or about 7,500, practice obstetrics. These physicians have officiated at the births of over 1,300,000 babies during the last ten years. In

that time 3,254 deaths (these are the figures of the federal bureau of the census, which are always liberal) were ascribed to puerperal septicemia. According to the 1930 analysis one-half of these were preceded by abortion. Thus ordinary obstetrical service could not have been involved in more than 1,627 deaths from puerperal septicemia in ten years. That gives an average of less than 1 death, where obstetrics might have been involved, from puerperal sepsis in ten years for each 4 physicians. In 1930 there was only one death from puerperal sepsis which involved ordinary obstetrics, including difficult labor, for each 81 physicians who practice in Illinois. At the rate which has prevailed during the last decade in Illinois it would take nearly 25 years for child-bed fever to cause enough deaths to average 1 per practicing physician in the State even when those which are preceded by abortion are included in the calculation.

But, says de Kruif:

"Of course, the great mass of our mothers are lucky; They have their babies at home."

That statement is far from the truth so far as the mothers in Illinois are concerned. In 1930, for example, 65,340 of the 129,937 live births reported in Illinois occurred in hospitals against 64,597 in homes. In Chicago, 68 per cent. of the births occurred in hospitals in that year. In six leading down-State cities an aggregate of 84 per cent. of the births occurred in hospitals in that year. The main factor which determines whether or not a majority of births take place in hospitals seems to be the availability of hospital facilities. In Oak Park and Evanston, for example, over 97 per cent. of all births occur in hospitals. In Rockford, 82 per cent. of all births occur in the hospitals; in Springfield, 75 per cent.; Chicago and Peoria, 68 per cent.; Decatur, 64 per cent. Furthermore, as shown above, the death rate in down-State hospitals in Illinois from child-bed fever which involved the hospital obstetrical facilities was about one-half what it was in the homes.

Another statement by de Kruif is:

" . . . . so that child-bed fever kills one out of eighteen of all married women dying between ages fifteen and forty-four."

That statement is not true for Illinois. An analysis of the death certificates for 1930 shows that 5,171 married women, ages 15 to 44 years

inclusive, died in that year. Of these, 176 or one in every twenty-nine deaths were ascribed to puerperal septicemia. This ratio is given on the basis of all deaths ascribed to puerperal septicemia, including those that were preceded by abortion. When those involving abortion are eliminated only about 1 out of each 60 deaths among married women between 15 and 44 years of age results from child-bed fever.

Finally, de Kruif points to Dr. G. C. Thornton of Lebanon, Kentucky, as a physician apart because,

"In twenty-seven years he's not had a single death from child-bed fever,"

although engaged in general practice. Dr. Thornton is to be commended highly for this record but it is by no means an unusual record. It was pointed out above that if equally divided among all physicians in Illinois the deaths ascribed to puerperal septicemia would not average more than one per physician in twenty-five years, even when those deaths that are preceded by abortion are included. Since some physicians have wider practice than others it follows that some would experience a larger percentage of the losses from puerperal septicemia than others. Thus many general practitioners doubtless have gone through a full, long life of medical practice without ever facing the unhappy duty of signing a certificate with puerperal septicemia designated as the cause of death.

Furthermore, de Kruif in holding up as a blot against the medical profession of Kentucky the reported loss of 308 women from puerperal septicemia fervently regrets, concerning the report, that:

"When it gave the deaths, if it had just given the names of the doctors who had attended those 308 cases, 'Then we'd know where to begin work,' said Thornton."

In the first place it is probable that fully one-half of these cases were either preceded by abortion or were attended at the time of birth by a mid-wife or neighbor. In the second place every death certificate is very carefully scrutinized and studied by the state public health authorities. No physician or other practitioner of obstetrics could be involved in any significant number of deaths from puerperal septicemia without attracting the attention of the public health authorities to that fact. No



community and no hospital could for very long be the place of an excessive death rate from puerperal septicemia without attracting the attention of the health authorities.

After eliminating abortion, about twenty-five per cent. of which is self induced and a goodly percentage of the remainder of which results from such preventable and controllable infections as syphilis, it is clear that the danger from child-bed fever is far less than the risk of death encountered in tuberculosis. It is safer for a mother to have a baby than it is for her to drive around in an automobile. Having a baby under the care of a reliable physician and in any reasonably well managed general hospital is safer for the mother, so far as child-bed fever is concerned, than the risk of fatal accident. The risk of being murdered with malice aforethought is greater for the woman of child bearing age (15-44 years inclusive) than is the risk of child-bed fever when abortion is excluded. After eliminating those cases in which abortion was involved, puerperal septicemia caused 92 deaths in Illinois during 1930. Homicide was charged with 108 and accidents with 258 deaths among women of child bearing age in that same year. Of these accidents, 216 were due to automobile mishaps.

"Whispering," campaigns against doctors who sign certificates with puerperal septicemia specified as the cause of death is suggested by de Kruif. His plan needs neither emphasis nor stimulation in order to bring about adoption. The doctor who stoops to criminal abortion is usually a better known character than many practitioners of untarnished integrity. The doctor who sees in a five dollar bill the symptoms of a cold which requires a prescription for whiskey as an offset to serious complications needs no radio broadcasting facilities as an advertising medium. In like manner the other attributes of skill and integrity which attach to the character of physicians are communicated.

Every sane person deplors the loss of a mother's life, especially at a time when the welfare of a child depends upon it. When the loss results from a preventable cause, the event is doubly grievous. This fact, however, is no logical reason for laying at the door of the delivery room all blame for mortality attributed in statistical tables to puerperal septicemia. It is more than probable that neglect

(either innocent or willful) on the part of prospective mothers in the employment of medical skill and hospital facilities during the prenatal period results in a great many more child-birth complications and disasters than does incompetent medical and hospital obstetrical service.

It is a strange thing that many intelligent people, both within and outside the medical profession, seize upon the notion that the United States has the highest maternal death rate in the world and shout from the rooftops their implicit faith and belief in that statement. The gross statistical tables indicate that the statement is true. An analysis of all the factors involved in computing the statistics shows that it is not true. It is one thing to run through a column of numerals set opposite a list of various causes of death. It is quite another to examine one by one the certificates of death and to bring into the picture the various factors and circumstances involved in each death. The two methods frequently lead to surprisingly different conclusions.

#### PIONEERING IN FINANCIAL PROPHYLAXIS\*

THOMAS P. FOLEY, M. D.

CHICAGO

Rarely are practitioners of medicine as individuals or medical societies as organizations considered as having acute business instinct or business sense. When, as individuals or as organizations, they publicly discuss a problem of ordinary interest to all citizens the reaction has been that their earning power has been curtailed or imperiled or that their professional fields have been invaded.

Far seeing medical men entered a protest against the removal of the barriers by Congress on July 3, 1930, when it amended the World War Veterans' Act of June 7, 1924, opening government hospitals to all veterans for acute medical and surgical conditions not service connected, "Big Business" felt so safely entrenched that the protest was disregarded. But, when, on February 11, 1932, General Frank T. Hines appeared before the Sub-Committee of the Committee on Appropriations asking an appropriation of \$1,000,399,527 for the Veterans' Administration for the fiscal year of

\*Read before the Livingston County Medical Society at Pontiac, Oct. 20, 1932.

1933, "Big Business" took on a mantle of civic virtue because by that time all felt the depression and began to be interested in what the Illinois State Medical Society, an organization of 7,000 citizens of the State of Illinois, who are physicians, had been protesting against for over two years.

Articles on the expenditure of public funds by the Veterans' Administration began to appear in the daily press and in various of the lay magazines. Two of the outstanding articles are those of Robert J. McManus in *Current History* for April, 1932, entitled "Billions for Veterans" and one by Former Governor Alfred E. Smith in the *Saturday Evening Post* for September 17, 1932, entitled "Veterans and Tax Payers."

In May of 1932 there was formed the National Economy League to study government expenditures with a view to retrenchment in the spirit of economy to relieve the great tax burden of the common citizenry. The caliber of this movement is shown by its personnel which enlists the good offices of such substantial Americans as Ex-president Calvin Coolidge and Former Governor Alfred E. Smith.

In the comments and remarks which follow in this paper excerpts will be used from various articles on the subject. The only other authority quoted will be the reports of the Veterans' Bureau for the year ending June 30, 1930, and the report for the period ended June 30, 1931, when all activities were embodied under the Veterans' Administration. The statements of General Frank T. Hines before the Sub-Committee of the Committee on Appropriations will also be used. These statements were made before this Committee of the Seventy-second Congress on February 11, 1932.

To quote Governor Smith, "It is only when we run into a period of terrible depression and financial difficulty, when the burden of taxation means something to the people, that they begin to consider some of the things to which in the past they paid no attention whatever." Good, therefore, may come out of the economic vale we occupy at this time, if the taxpayers see and understand a needless government burden.

Credit for the pioneer effort in attempting to direct public attention to these vast ex-

penditures, which directly cause high taxes, belongs to the Illinois State Medical Society. With a view to bringing this condition to the attention of its own members and through them to the public throughout the state, the Council of that society in January of 1931 at East St. Louis adopted a resolution authorizing the organization of a committee to be known as a Contact Committee with The American Legion. The object in organizing this Committee was to establish and maintain amicable relations with The American Legion and to assist that organization, if possible, in the complete rehabilitation of ex-servicemen with service connected disabilities. This action of the State Council was confirmed by the House of Delegates at the annual meeting in East St. Louis in May of 1931.

The basis of the organization of the Contact Committee was in each of the component County organizations. The officers of each County Society were requested to either appoint or have their societies elect one of their members as their county representative.

These County Chairmen were to act in the dissemination of information not only to their medical organizations but also to aid in the education of the laity in their counties, particularly the ex-servicemen.

The Council Committee met in Chicago in March, 1932, and after much discussion and careful consideration decided to submit to the House of Delegates at the annual (1932) meeting at Springfield a set of resolutions on the subject and also to hold a Veterans' Dinner during the annual meeting.

The dinner was held as scheduled, was well attended, and addressed by representatives of the Veterans' Administration, Dr. H. H. Shoulders of Nashville, and the Honorable Oscar Carlstrom, the Attorney General of the State.

The Resolution was presented to the House of Delegates and was adopted. It reads as follows:

WHEREAS, The Illinois State Medical Society heartily endorsed the efforts of veterans' organizations to provide adequate government hospital facilities for all service connected cases with the object of accomplishing, as far as possible, their complete rehabilitation, and

WHEREAS, The Illinois State Medical Society



is in accord with "the first sentence of Section 202 (10) of the World War Veterans' Act of 1924, as amended, authorizing the hospitalization of honorably discharged veterans of specified wars who are suffering from tuberculosis, neuropsychiatric diseases and certain named general conditions regardless of the origin of such disabilities," and

WHEREAS, The Illinois State Medical Society interprets "the second sentence of Section 202 (10) authorizing the hospitalization, *insofar as existing facilities permit*, of veterans of any war not dishonorably discharged, without regard to the nature or origin of the disability" to be in spirit the authorization for the occupancy of the existing beds not occupied by service connected cases or the specific cases mentioned in the first sentence of Section 202 (10) in the hospital facilities estimated for these classes. The Society does not interpret this sentence to mean the enlarging of hospital facilities to meet the demand arising out of this legislation, and

WHEREAS, It is the opinion of the Illinois State Medical Society that under the present law danger exists to the life and recovery in acute medical and surgical cases in their transportation to Veterans' Hospitals from local communities where competent medical care and adequate hospital facilities are available, and

WHEREAS, The Annual Report of the Administrator for Veterans' Affairs for the year ended June 30, 1931, states on page 6 "it appears that additional hospital facilities *will not be required to meet the future demands of either the service connected cases as a whole of the tuberculous type of patient*," and

WHEREAS, In the same report it is stated on page 22 "upon completion of the construction authorized by the Act of Congress on March 4, 1931, there will be available in government hospitals, exclusive of the beds normally required for members in the national soldiers' homes, a total of over 45,000 beds or a *number sufficient to accommodate both the service connected and non-service connected loads through the year 1935*," therefore be it

RESOLVED, That the Illinois State Medical Society, representing 7,500 physicians in the state of Illinois, opposes the unlimited expansion of government hospital facilities beyond that necessary to provide hospitalization for

the classes of disabled ex-service men specified in the first two paragraphs of this Resolution, be it further

RESOLVED, That a copy of this Resolution be forwarded to the State Officers of The American Legion, the Disabled Veterans' Association, the Veterans of Foreign Wars and to the officers of the component county societies of the Illinois State Medical Society, and be it further

RESOLVED, That a copy of this Resolution be forwarded to the Senators and all Representatives from the State of Illinois in Congress so they may be conversant with the views of the Illinois State Medical Society on this important question.

There is some justice, scant though it may be, in the hospitalization of those cases mentioned in the first sentence of Section 202 (10), although it would seem that the beneficiaries under this clause should be of the class receiving the other necessities of life at public cost.

The basis for the figures which will be used from this point on are taken from the Annual Reports of the Veterans' Bureau for 1930 and the Veterans' Administration for 1931, and the statements of General Frank T. Hines as given to the Sub-Committee on Appropriations on February 11, 1932, as issued by the Superintendent of Documents.

General Hines stated the total disbursements to the veterans of all wars and their dependants to December 31, 1931, had been \$14,950,448,158. Of this total \$6,177,306,150 had been disbursed to the veterans of the World War, their dependents and their beneficiaries. Of this amount, however, \$947,003,581 was available because of the deductions for allotments from the pay of World War Veterans in service and premiums on insurance, so the net payment of the Federal Government to the World War Veterans, their dependents and beneficiaries was \$5,230,302,569. This amount is about one-fifth of the cost of the war to the United States.

Since March 3, 1919, eight general acts of Congress have authorized the expenditure of \$113,327,000 for new hospitals, domiciliary homes and outpatient facilities. Of this amount \$97,450,000 has been appropriated. During this period there has been appropriated \$9,425,000 in addition. As of December 31, 1931, it has

been estimated that all hospitals and homes represent \$150,000,000.

The number of patients in the hospitals on December 31, 1931, was 43,225. Tuberculous patients numbered 7,296, neuropsychiatric 18,839 and general medical and surgical 16,000. In the outpatients departments there were 850,269 and the number of physical examinations for the year were 2,148,532.

On July 2, 1926, an amendment was passed to the World War Veterans' Act authorizing the payment of \$50 a month to veterans who had had tuberculosis which had reached a condition of complete arrest. Quoting General Hines: "The greater number of these cases would have been rated prior to the passage of this amendatory legislation with a disability of less than ten per cent. and consequently not eligible for compensation." Of this type of cases on December 31, 1931, there were 43,038 each receiving the statutory award of \$50 a month or \$2,151,900 each month.

On May 24, 1928, an act was approved for the retirement of emergency officers of the Army, Navy and Marine Corps, who incurred physical disability in line of duty during the World War. This act provided that a permanent disability of not less than thirty per cent. entitled the emergency officer to retirement pay at the rate of 75 per cent. of the pay to which he was entitled at the time of his discharge from the commissioned service. On December 31, 1931, a total of 13,120 applicants for benefits had filed claims under this act. Of this number 6,928 had been retired with pay, 5,235 had been disallowed and 950 had been retired without pay. Payments under this amendment are now being made in the approximate amount of \$1,000,000 a month.

On July 3, 1930, an amendment was passed to the World War Veterans' Act, providing for the payment of a Disability Allowance to veterans of the World War for disabling medical and surgical conditions of at least twenty per cent. not incurred in line of duty and not service connected. The answer to this act was the filing of 715,399 applications for benefits up to December 31, 1931. Of these applications 641,333 have been adjudicated and 326,495 are receiving payments under the provisions of the amendment. These payments now aggregate \$6,000,000 a month.

Disbursements for compensation, emergency officers' retirement pay and disability allowance during the fiscal year of 1931 reached a monthly average in excess of \$21,000,000. Through December 31, 1931, an aggregate total of \$2,048,730,392 had been distributed for these purposes and the total monthly payments were in excess of \$26,000,000.

Monthly payments of compensation benefits to World War Veterans have increased approximately \$16,000,000 per month since the passage of the World War Veterans' Act of June 7, 1924. There is an increase of almost two hundred per cent. and to quote General Hines: "the greater part is traceable to the liberalization of the benefits granted under the original act."

A current survey of the construction program showed that in 1933 there will be in operation a total average of 63,141 hospital and domiciliary beds in Veterans' Administration hospitals and homes.

The combined activities of the Veterans' Administration makes the issuance of 1,400,000 checks necessary each month and these checks represent the expenditure of \$60,500,000 each month.

The per diem cost for hospitalization in neuropsychiatric cases is \$2.69, general medical and surgical cases \$4.34 and tuberculous cases \$5.19 or an average cost of \$4.07, a yearly average of \$1,485.55 a case per patient. The cost of professional service for each patient is given as \$151.56 a year.

Where financial prophylaxis is in order is in the consideration of the second sentence of Section 202 (10) of the Veterans' Act. This is the section which authorizes the admission of ex-servicemen to government hospitals for general medical and surgical conditions not service connected. This sentence does contain the expression "*when existing facilities permit.*" In the report for the year ended June 30, 1931, the last report available at this time, the following appears: "the general medical and surgical cases admitted to hospitals under the second sentence of the said section have increased rapidly and during this year formed approximately seventy-nine per cent. of the admissions for disabilities not determined to be of service origin."

On page 6 of the same report we find "in



the matter of hospitalization the new administration, like its predecessor, the former Veterans' Bureau, experienced difficulty in fulfilling all the demands for Government hospital facilities due to the constantly increasing pressure for hospitalization that is being exerted by the veterans with disabilities not attributable to military service."

Also on page 6 of the same report we read: "since June of 1924, when hospitalization was first authorized for the veterans of all wars without regard to the origin of their disabilities, the patient load for the non-service connected cases has increased until it now forms 54.27 per cent. of the total, an increase of approximately eight per cent. since June, 1930. This marked increase is further reflected in the analysis of admissions to all hospitals during the year which shows that over *three-fourths* of the total were of the non-service connected class."

Continuing the same report says: "if it is to be the policy of our government to furnish hospitalization to all veterans of all wars whether their disabilities are due to service or otherwise, and such appears likely in view of the action of the last Congress which specifically authorized for the first time the acquisition of facilities for the veterans of all wars, then the existing and authorized government facilities will have to be materially increased to meet future demands."

Again quoting "most of the present pressure for hospital accommodations is being exerted by veterans suffering from general diseases or conditions, which also will be true in the future, due to the increase in the number and frequency of diseases and conditions of this type which come with advancing years."

In the same report on page 4 we read: "it appears that additional hospital facilities *will not be required* to meet the future demands of either the service connected cases as a whole or the tuberculous type of patient."

From the quotations you have heard taken from the report of the Administrator of Veterans' Affairs does it not seem reasonable and logical in the effort to reduce government expenses and thereby lower taxes that the taxpayers of the country should be acquainted with these facts? It seems reasonable to feel that when the taxpayers are acquainted with

these facts they will protest against the unlimited building and maintaining of government hospitals to care for surgical and medical cases in no way connected with military service and which are the natural sequence in the advancing years of the ex-servicemen.

The voters of every Congressional District should have an expression of opinion from the candidates desiring to represent them in Congress and the people of the State should know the attitude of the candidates for the Senate and the Congressmen at Large.

On page 22 of the report ended June 30, 1931, it is stated "upon completion of the construction authorized by the act of March 4, 1931, there will be available in Government hospitals, exclusive of the beds normally required for members in national soldiers' homes, a total of over 45,000 beds or a number *sufficient to accommodate both the estimated service connected and non-service connected loads through the year 1935.*"

Unless the brakes are applied to this building, hospitalization and payments a bureau which now uses from twenty to twenty-five per cent. of the government budget will continue to increase until the present enormous cost seems small by comparison.

The financial prophylaxis is in the hands of the voters. Now that a dollar means real money to the majority of the people, the American voter may begin to think before he votes. He may send as his representative to the various taxing bodies real representatives who have in their minds the needs of all the people of their districts and not the one who votes as expediency and not as his conscience dictates.

#### AGRANULOCYTOSIS\*

AUSTIN A. HAYDEN, M.D.

CHICAGO

I want to begin this presentation with the frank statement that what I have to say is based on an experience of twenty-two cases, and the slides are taken from Dr. Doane's monograph. The term agranulocytosis, as given in the program, is of course a broad picture. The term agranulocytic angina, as has very often been pointed out, is not a properly descriptive term for the condition we are going to discuss, due to the fact that angina is not always present, as

\*Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Springfield, May 18, 1932.

I shall show in one of the cases I am going to report in detail, and perhaps is only an incidental occurrence. The term "malignophema" is perhaps better.

To begin with, I shall give in detail four cases out of this twenty-two which present some things that are of particular interest.

The first was seen three years ago in consultation with Dr. Deno O'Connor at Mercy Hospital. I saw her first on the postmortem table. I had been called in the morning with the advice that a woman was very ill with a sore throat. There was no obstruction in breathing. I got there in the afternoon, and by that time death had occurred. The reason I mention this case is the fact that she had had done the same things that ordinarily would be done for a sore throat, for an ulcerated pharynx, before our attention was called to the clinical picture of this disease—the granulation cells of the white blood cells. The point this case emphasizes is the fact that in any sort of ulcerative sore throat, any ulcerative lesion of the mouth not very amenable to treatment, not only should smears be taken but the blood count should be taken, and if the white cells are below 5,000 a differential count must immediately be made.

The second case is a very interesting one, and a sad one to me, as it concerned the wife of a fellow practitioner in Chicago. This woman went with her husband down to Culver a year ago in August and was perfectly well to all appearances—made the drive from Chicago and to all appearance was in good health; I saw her that afternoon. That night she had a very severe chill. The temperature rose to 104 degrees, she had nausea, vomiting, and was very sick. The doctor had difficulty in getting her home. However, she felt better. He called me because he suspected, on account of the swelling of the glands of the neck and some tenderness in the sinus, a maxillary sinus involvement. Three weeks before that she had had an ulcerated tooth, a first molar, removed from the left upper jaw. This wound had healed well. The doctor, however, criticized the dentist for having sutured the tooth cavity. He thought some infection might have been locked up which should have been treated.

The maxillary antra were perfectly clear; on the side of the neck there was some glandular involvement; the nose was clear. She had an ulcerative lesion on the left tonsil, no swelling, no difficulty with breathing. She was very sick, but the mentality was perfect. The temperature was 104. We made a white blood count and found she had only 8,000 white blood cells, and on differential count, no polymorphonuclears. We also made a smear from the throat and found Klebs-Loeffler bacillis, and thought the disappearance of the white blood cells might be due to the diphtheria bacillis, and that this might be an agranulocytosis that might be amenable to treatment. But in spite of the fact that repeated transfusions were given, and enormous doses of antitoxin were given intravenously and intramuscularly, within forty-two hours from the initial attack she was dead.

The third case is one which I am particularly anxious to report to you. It concerns a man of 43, a railroad employee, who was brought into St. Joseph's Hospital by one of the attending men, whom I was asked to see. He had a sore throat, edema of the soft palate, and gave a history of not feeling well for the past three months; he tired very easily. The white blood count was below 1,000, and the polymorphonuclears very low in number. He was given transfusions four times and under great pressure, and—I am ashamed of this part of the report—we were induced to attempt to remove the ulcerated tonsils. He died on the table before anything had been done to the throat—from the anesthesia.

The last case I want to report is a case that got well. It concerns a woman of 67 years of age who was brought to St. Joseph's Hospital for the relief of sciatic pain, diagnosed as true sciatica. The attending physician made a nerve dissection freeing some adhesions he said were present. She had suffered from chronic arthritis and from this sciatica for many years. On admission before operation no differential count was made, but the total white count was 6,000. The wound in the region of the sciatic nerve healed completely except at one end, where an area about the size of a finger nail remained open. Around this were some blisters and ulceration. When these developed a second white count was made ten days after the first, which showed 8,000, with no polymorphonuclear cells. Dr. Voight, the physician in charge of this case, used turpentine injections intramuscularly, 2 cm. at intervals of four days each. The patient remained in the hospital all told for six weeks and now has a count of 5,000 white blood cells with 40 per cent. polymorphonuclears.

The last case I wish to ask Dr. Novak's permission to include in this report. It is his case, which I saw with him, and these are the only two out of the twenty-two I have seen, that are alive now. I do not know that they are well entirely, but they are not dead.

These clinical notes bring up some very interesting things in regard to the recent advances in the study of diseases of the blood. Quoting from Doane's work, it seems to be no longer enough to take one white blood cell count; neither does it seem to be sufficient to take a single red blood cell count, because Bushnell and Bangs have shown that an average white blood cell count of 10,675, based on about twenty differential counts at different hours of the day at three hour intervals, will show a variation of 4,800, almost 100 per cent. and that the red blood cells will show a similar variation. In other words, an average blood count of 5,589,500 will show a change of 68,200, with the hemoglobin varying about 1 per cent. for every 2 per cent. of variation in the cells;



the hemoglobin varies very much less than the total cell count.

The first slide shows a series of twenty cases, showing just the thing, the range at three hour periods in the blood counts. A chronic osteomyelitis varied 1,400 to 2,800, and so on, with chronic leukemia showing the least, lobar pneumonia showed exactly 100 per cent. variation.

This slide shows the variation in the white blood count taken at fifteen minute intervals, four to the hour. In the case with lobar pneumonia there is a very distinct peak at the half-hour period in each of three hour counts, so Doane concludes from this chart that there is a variation in formation of white blood cells from the blood forming organisms into the blood stream. The same relationship is shown in the red blood cells, with the difference in hemoglobin and cells just as I have already stated; the minimum of 3,600 and the maximum 3,800, with a percentage range of about one to two.

The next is a pretty long chart. I want to direct your attention to the first two columns. These show the polymorphonuclear cells and the myelocytes, the predecessors of the polymorphonuclears from the bone marrow. These counts are made from bone marrow. You will note this normal case, which died from an accident, and note the very close relation between the maturation of normal polymorphonuclears and the antecedent myelocyte. A considerable amount of work has been done with sodium nucleinate. The objection to its use is the fact that while it gives a secondary leukocytosis—large in this case, 100,000—it is preceded by a leukopenia which is of course a very objectionable thing. If that leukopenia could be eliminated from the reaction the sodium nucleinate would appear to be an ideal drug in these cases. The same thing is found to be true in radiation of the long bones and bones of the chest.

This drop in the white blood cells following sodium nucleinate injection is not a real leukopenia, because the white blood cells for the first two or three hours after the injection of sodium nucleinate are still in the body, but they are located in the spleen instead of in the blood stream. In the first case there was a total white blood count of 7,000, and after it was injected, a decrease to 6,000, which is not as marked as in the second case, in which the number of 18 and 8 appears with 64 per cent.

against 16 in the second, and 66 against 19 for the myelocytes in the first. If a splenectomy is done during this leukocytic period after the nucleinate has been injected, the splenectomy is in the center here, the nucleinate is injected here, and you get away from this first depression stage in the production of white blood cells. In other words, the function of the spleen in this case is to hold the white blood cells in its parenchyma, and they are raised perhaps by the action of adrenalin of the body, and the leukocytosis appears after that action has taken place. In any event a leukocytosis can be caused by injection of adrenalin. It is very interesting to note that during this leukopenia following sodium nucleinate the spleen itself increases in volume. The increase is maintained during the period of increased leukopenia.

Just to show very rapidly the formation of the cellular elements of the blood, the leukocytes come from connective tissue, from nerve roots, possibly from the spleen and possibly from some other organs. In regard to the formation of leukocytes, I have not all the data here, but it is more or less an established fact that these cells come from lymphocytic tissue. From that the young lymphocytes and mature lymphocytes proceed, then the old lymphocytes. The red blood cells I think proceed entirely from the bone marrow. The rest of these slides show the accepted theory that all of the granulocytes are born in the bone marrow proceeding somewhat in the same way as the lymphocytes, all being mobile down to the non-mobile leukocytes which appear as smears.

It would appear from a clinical standpoint that sodium nucleotide rather than sodium nucleinate is the logical thing to use in these agranulocytosis cases; that the stimulation to leukocytosis that is given by x-ray, small doses over the bone marrow, is of doubtful value on account of the fact that it is preceded by leukopenia and is apt to lead to aplasia of the bone marrow; any sort of surgery on these cases, with the exception of blood transfusions, is a very hazardous thing to attempt; the most common symptoms complained of are loss of pep, loss of energy, a general feeling of being under par physically; one of the cases that had had antiluetic treatment and much arsenic showed a high degree—that may be a contributing factor. And the last conclusion I have

to offer, which will save you a great deal of chagrin, is the fact that a blood count should be made and a differential blood count on any case that presents an ulcerative lesion of the mouth or that is not getting on well. Differential counts are of extreme importance under any circumstances.

### DISCUSSION

Dr. J. P. Simonds, Chicago: Advances in medicine are made in various ways. When a new disease is discovered or an old disease is recognized many workers begin investigating it and our knowledge of its etiology, pathogenesis, etc., grows rapidly. Agranulocytosis is such a disease which has only recently come into prominence. Its high mortality rate and its spectacular clinical and hematologic pictures have stimulated widespread interest in its study. As a result, we are already in a fair way to an understanding of it.

In considering any disease of the blood affecting the red cells or the granular leucocytes we should look upon the bone marrow as a functioning organ which discharges its products, blood cells and platelets, into the blood stream. It differs from other organs in that its parenchymatous cells are not grouped together in one mass inside a single capsule, but are scattered widely in different parts of the body, i. e., within a bony shell that serves as a sort of capsule. We are familiar with the fact that injurious agents can affect other organs of the body in a selective manner. They can also affect the bone marrow in a similar manner. Sometimes it is the erythrocyte producing part of the bone marrow that is most seriously damaged, and we have an anemia; sometimes the megakaryocytes, which are responsible for blood platelets, have their functional activity disrupted, with the result that we have a thrombocytopenia, with resultant purpura and diseases of that type. We should not be surprised, therefore, to find that certain injurious agents affect specifically and selectively those functions of the bone marrow concerned with the production of the granular leucocytes. In the bone marrow we are dealing with an organ which has at least three separate functions. There are three groups of cells, erythroblasts, myeloblasts and megakaryocytes, any one of which may be selectively damaged by injurious agents—toxic or infectious.

All of the cases of agranulocytosis which I have studied have had a severe infection somewhere in the body, not necessarily in the throat. One case had an infection which started in the throat, but extended down into the bronchi as an extensive ulcerative process—pharyngitis, laryngitis, tracheitis and bronchitis. In other cases ulcerations were limited entirely to the intestines. There are two possible explanations as to how apparently the same microorganism will induce in one individual an agranulocytosis and in another a leucocytosis. Two strains of the same microorganism may vary in toxin-forming power and one may be selectively injurious to the granulocyte-producing portion of the bone marrow. Or the patient may show special susceptibility, a sort of idiosyncrasy, to the toxic or infectious agent, and the particular weak spot

may be in that part of the bone marrow concerned in producing polymorphonuclear leucocytes. I think that agranulocytosis is due to the selective action of some infection upon the myeloid tissue of the bone marrow.

Dr. Austin A. Hayden, Chicago (closing): I have nothing to add especially, except to thank the gentlemen for discussing the condition, and to add to the conclusions which I gave that transfusion is always to be done repeatedly, and with properly typed blood of course.

### COMPLICATIONS OF THE PUERPERIUM

E. C. MCGILL, M.D.

EVANSTON, ILL.

The subject assigned to me for discussion this evening is the complications of the puerperium. As I understand it, you ladies and gentlemen do not want a text-book exposition of the subject. You can all get that by reading your DeLee, Williams or whatever text you prefer. I understand that I am to discuss complications of the puerperium as they occur in our hospital with a brief resume of what we do about them. I hope that in your discussion of this paper you may have suggestions to make that may help all of us.

I have roughly divided my subject into two sections.

First: the complications developing in the uterus and its associated organs.

Second: the complications developing in the breasts.

A third section dealing with the complications involving other organs or systems can not be considered tonight because of lack of time.

One of the more common complications developing in the uterus is the post partum hemorrhage. This may occur on the delivery table immediately after the delivery of the baby or after the delivery of the placenta. It may occur any time in the first hour or two after delivery. If it occurs later than that it is usually due to retained placental parts.

If the hemorrhage occurs after the delivery of the baby and by palpation the body of the uterus is firmly contracted about the placenta, one must suspect a bleeding from some point below the uterine body. Especially if there has been an operative delivery—forceps or version and extraction—one must look for a torn cervix or tear in the lower uterine segment, a tear of the vagina or tear involving the vestibular bulb, particularly if there are varicose

\*Read before Evanston Branch, Chicago Medical Society, May 5, 1932.



veins in the vagina and vulva. The patient is given a general anesthetic and 0.5cc pituitrin intramuscularly, is put up in stirrups, and retractors are placed in the vagina. The cord and attached clamp are put up on the abdomen and a tailed pack is inserted in the cervix to hold membranes and cord out of the way. If the bleeding is below the uterus it can be now located. If it seems to come from the uterus, the cervix is grasped by long handled sponge forceps and traction put upon them. Then, by changing the position of first one and then the other sponge holder, the cervix can be inspected and tears found and repaired.

One must be careful, of course, not to include gauze or placenta or membranes in the suture. Sometimes, if the repair seems difficult with the placenta in place, a clamp put on the bleeding point may be left till the placenta is extruded and then the repair can be completed. The placenta having been delivered, an intramuscular injection of ernutin or some other good ergot preparation is given. If the bleeding continues and examination of the lower segment shows no tear, the uterus is firmly packed. The bleeding is controlled.

We have spoken of the more unusual type of post partum hemorrhage. The more usual type is simply due to relaxation of the uterine musculature allowing the large venous sinuses to pour out their blood. The treatment of this type of hemorrhage is first, the prophylaxis of refraining from Crede expression unless necessary and of closely watching all patients for at least two hours after delivery. If the uterus relaxes, massage it and give intramuscular injections of pituitrin and ergot. By watching a patient is meant not merely inspecting the pad for blood but also feeling the uterus.

The patient, however, may need some attention before this. Stopping the bleeding is just one part of saving the patient. If ever one needs plenty of trained help in a delivery room, it is during a post partum hemorrhage and immediately afterward. Never is one more grateful for the well equipped hospital. A tremendous amount of blood can be lost in a very short time. Unless one is watchful, much more blood may balloon up the uterus or run down into the waste receptacle than one thinks. Time is most important. Things must be ready. Stimulants may be given as needed.

Usually, if the patient's condition is not bad, it is good policy to stop the bleeding before giving an intravenous injection just as one would stop the leak in a pail before increasing the pressure in the pail by adding more fluid to its contents. Don't wait too long. A pulse may be fairly strong at one time and two minutes later be thready and scarcely perceptible. Better judge the time for the intravenous by the amount and rapidity of the blood loss than by the condition of the pulse alone. An assistant may introduce the intravenous needle and begin the administration of Ringer's solution while the bleeding is being controlled, thus often avoiding shock. The patient and prospective donors can be typed and a complete transfusion set in operation in our modern hospitals in a very short time. If the donors are in the hospital, such a transfusion can be done within half an hour of the recognition for its need. We must rely on the intravenous Ringer's solution for immediate replacement of fluids and in severe hemorrhage transfuse as soon as possible. We do many more transfusions throughout the hospital now than we did five years ago. The typing and matching of blood has been greatly simplified and the technique of transfusion easily mastered.

In a moderate hemorrhage, of course, the patient may quickly supply plasma and blood cells to make up the loss and so suffer no great immediate inconvenience or have any future disability.

In a more severe hemorrhage, plasma is poured into the blood stream as quickly as the body can supply it and if the hemorrhage is not too great, the blood volume may be back near normal in a few days but of course the blood stream has been greatly diluted. The blood cells do not form nearly as rapidly as the plasma. We have a secondary anemia, a lowered resistance to infection, a tired, listless mother, perhaps a long convalescence.

In the most severe type of hemorrhage, while the body may pour in its plasma, there is not enough volume to sustain circulation. Fluids must be given at once, of course, but whether this type of patient lives or dies depends not only on the supplying fluid but also on the supplying of plasma and of blood cells.

I remember years ago a patient who showed symptoms of hemorrhage to the extent of alarming the interne so that he called me on

the phone. Her pad showed no great amount of blood. When instructed to feel the uterus, he returned to the phone in a minute to say that it was ballooned up. Massaging expelled a startling amount of blood. We immediately packed her and gave her ergot. I packed that uterus because I knew that another hemorrhage would kill her. We gave her fluids by hypodermoclysis and gave her stimulants. She improved but remained very pallid. Her blood count was below 2,000,000 R.B.C. and her hemoglobin was below 50%.

She later developed phlegmasia alba dolens first in one leg and then in the other. She never fully recovered. That case taught me something. A patient that has lost a great amount of blood needs two things badly. *First*, give her fluids quickly to keep up the pressure in the arteries and veins; give her heart something to work with; keep what blood she has circulating so that it may carry oxygen to the tissues and prevent thrombosis due to stasis. *Second*, transfuse such a patient as soon as possible.

A blood transfusion shortens the convalescence and raises the resistance in the case of moderate hemorrhage; many complications due to slowing circulation and infection are avoided. In the severe hemorrhage the transfusion is an immediate life saver. A small transfusion of 300cc is probably safer than a large transfusion at first. Another may be given the following day using the same donor. If another donor is used the recipient's blood must be again matched with the donor for it seems that the first transfusion may have changed the matching.

Another of the complications developing in the uterus and its associated organs is infection.

Infections have been classified under the two heads of autogenous and heterogenous infections. Some men claim that there is no such thing as an autogenous puerperal infection. These men are mistaken. We have all seen cases of infected joints associated with gonorrhea. We have seen infected heart valves associated with tonsillar infection. We have seen osteomyelitis in children develop following a trauma to the bone. The trauma localized the site of invasion of bacteria that had entered the blood stream from some other point of entry in the body; the so-called focus of in-

fection. A puerperal uterus is a large open discharging wound. It may be infected by bacteria reaching it via the blood from some focus of infection in the body. Prophylaxis consists in cleaning up all such foci to the best of our ability during the prenatal period.

While we know that autogenous infection does occur, we do not use it as a refuge. We feel very badly and examine ourselves and our environment very closely when we have a puerperal infection.

When the infection reaches the uterus, the prognosis depends upon the type of infecting organism. A saprophytic infection with foul smelling lochia has of course a better prognosis than the streptococcus infection with the thin watery irritating discharge. Whether the patient gets well or not when a streptococcus infection is present, depends on the balance between the virulence of the streptococcus and the resistance of the patient rather than on any treatment that we can give. We help all we can. We elevate the head of the bed to permit gravity to aid in walling in the pelvis an extension of infection through the uterine wall and tubes. We give no enemata. We keep the uterus contracted by the use of ergot. We keep an ice cap on the lower abdomen and above all we make no vaginal examinations. We palpate the lower abdomen very tenderly if at all. Here again we use blood transfusion and lately by the use of a new machine brought to us by one of our staff we can give a continuous venaclysis of fluids—glucose, Ringer's, etc.

A patient with a streptococcus infection of the uterus of a virulent type may develop a bacteriemia; may develop metastatic bacteriemia from infected clots of blood; may develop secondary foci in brain, eye, lungs, joints, but before this happens the patient is usually extremely toxic. The streptococcus is a fast working organism. I remember one case that rapidly grew worse. I was called in consultation with one of my confreres. The patient complained of pain in the left shoulder. She was breathing very rapidly and was cyanotic. Her abdomen was not tender nor was it at all rigid. We made a diagnosis, because of some findings in the chest, of a pulmonary embolism complicating a puerperal infection. The patient died. At autopsy she had some emboli in the lungs but she had died of a streptococcus peritonitis. That pain in the shoulder was



caused by the inflammation of the under side of the diaphragm. She died of peritonitis without tenderness or rigidity of the abdomen. That is rather characteristic of streptococcus peritonitis. It may very quickly overwhelm a patient.

One must be on guard constantly as to his technique and must also protect as much as possible the parturient from contact with persons with sore throats, infected fingers, and from other patients with vaginal discharge. At one time, a patient with a discharge was inadvertently put in a ward with two clean cases. The patient with the discharge went home well, immune to her own organisms. Both clean cases developed a streptococcus hemolyticus puerperal infection. One of them as I just stated, died of a streptococcus peritonitis. The other finally recovered after about eight weeks.

We gave the second patient a blood transfusion of typed and matched blood from her sister. The patient had a fever at the time of the transfusion. Within half an hour her eyelids swelled and she began to erupt large urticarial wheals. We gave her some adrenalin by hypo which quickly controlled the reaction. I have known of some other cases of reaction occurring in well-typed and matched blood transfusions when the recipient had a fever. This same patient developed an erysipelas on the back from her scapulae down to her knees. I gave her an injection of erysipelas serum on two occasions, and then painted the erysipelas area with 95% phenol. The phenol was washed off with a big cotton swab saturated with alcohol as soon as the skin began to turn white from the phenol. The following day the erysipelas was much improved. Her temperature dropped to practically normal and her convalescence from then on was uneventful. I give credit to the prayers of the sisters at the hospital for curing this patient. However, in the past, I have often used the pure phenol on erysipelas. It relieves pain and, to my mind, quickly controls the disease. I think nearly everyone has his own pet treatment for erysipelas.

Another type of infection occasionally met with is the gonococcus infection flaring up after delivery. This may involve the uterus or it may seem to be limited to the tubes.

Any of these infections may form an abscess in the cul de sac or an abscess in the broad

ligament. They may be drained through the vagina. Occasionally an abscess may develop in the iliac region and can be opened and drained through the abdomen after the abscess is well adherent to the abdominal wall so the general peritoneal cavity is not entered. Never go in on any of these streptococcus infections later with the idea of freeing adhesions and relieving pain. Streptococci lie latent in these adhesions for years and flare up an acute streptococcus peritonitis when operated on.

Now we will consider briefly the complications developing in the breasts.

Simple engorgement of the breast may occur on or about the third day. The breast is sore and hard and hot, sometimes mottled in color, and the nipple often flattened. No fever present. There may not be much milk in the breast. It is engorged with blood and lymph. We give a saline cathartic, reduce fluids, use a tight binder, and occasionally an ice cap. If for any reason a mother is not nursing her baby and we wish to dry up the breast we use much the same treatment. We do not massage these breasts. If pain is a problem, a sedative is given.

A caked breast, so-called, is a breast with engorgement of some part of it. This engorgement may be partly due to some occlusion of the milk ducts. This condition seems to be relieved by *gentle* massage or perhaps better yet, they are let alone.

We have considerable trouble at certain seasons of the year with cracked nipples. It seems to me that we may consider a cracked nipple as being very similar to a chapped and cracked lip. We have tried various lotions and ointments with varying success. The treatment that seems most successful is to dry the nipple carefully and apply 10% to 20% silver nitrate solution to the crack. Then apply an ointment. The baby is not put to this breast for 24 to 48 hours. The breast is emptied by an Abt electric pump every eight hours and the milk given to the baby. Great care as to sepsis is necessary.

Inverted nipples are a source of worry. The degree of our success in treatment depends upon the amount of inversion and the vigor of the baby. A vigorous baby can often pull out a partially inverted nipple. A weak baby and a badly inverted nipple make a bad combination. Something can be done during pregnancy in the way of correcting partly inverted nipples.

The patient is taught how to gently evert the nipple night and morning and she is encouraged to wear a shield over the nipple part of the time to prevent the nipple being pushed back by the clothing. Tight brassieres are interdicted. In the hospital, a partly inverted nipple may be everted by using the breast pump for a brief period before putting the baby to breast.

If the baby is weak or the nipple badly inverted, we stop the baby nursing and use the electric breast pump. We give the baby breast milk with complementary feeding as needed. After a few days with the electric breast pump, we often find that the yield of milk becomes less and less until the baby is dependent entirely upon artificial feeding. Care must be taken with the use of the pump in these cases, so that the nipple does not become sore and the breast infected.

An infected breast can best be avoided by great cleanliness and gentleness in the care of the nipple and breast. An infecting organism and a portal of entry are, of course, the cause of mastitis. The infecting organism is usually one of the staphylococci or streptococci. The portal of entry may be a cracked nipple or an injury most anywhere in the breast. When it is first recognized by fever, redness, swelling and pain, one tries to abort the infection and prevent abscess formation. The breast is put at rest, no nursing, firm binder applied, and ice caps are placed on the breast. If the infection goes on to suppuration, it should be incised early, a finger introduced into the wound, all septa between pus sacs broken down and a rubber or gauze pack put in.

Just how effective the ordinary boric acid wash of the nipple may be is open to question. The applicator with boric acid applied to the nipple before and after nursing does not, to my mind, furnish much in the way of an antiseptic. As a substitute, I suspect that a mild Dakin's solution may be effective without being irritating to the nipple.

636 Church Street.

Staff St. Francis Hospital, Evanston, Ill.

#### TOO MUCH

Mental Specialist—And that habit of talking to yourself—there's nothing to worry about in that.

Patient—Perhaps not; but I'm such a damn bore.—  
*Life.*

## TREATMENT OF POST OPERATIVE ILEUS WITH SPINAL ANALGESIA

GARLAND G. BROWN, M.D.

CHICAGO

There are numerous reports in literature stating the good results of spinal and of splanchnic anesthesia in paralytic ileus. It is common knowledge that spinal anesthesia causes violent peristaltic action in the human. This action begins in about fifteen minutes after the injection and gradually wears off within a few days.

This can be explained in that the splanchnic (sympathetic) system comes from the thoracolumbar region while the parasympathetic system comes from the cranial and sacral regions. It is known that these two systems are physiologically antagonistic and they are normally in balance to each corresponding segment of the bowel. The splanchnic is the depressor of the bowel (smooth muscle and glandular secretions) while the parasympathetic is the stimulator (pressor).

Since in postoperative ileus we get an over-function of the splanchnic system, it is quite desirable to numb the paralyzer so to speak. It is easy to visualize how spinal anesthesia or analgesia inhibits the undesirable over-function of the splanchnic and how this allows the cranio-sacral system to over-function by releasing the latter's check rein. The cranio-sacral system escapes the procaine. I think we may say from clinical observation this over-function of the cranio-sacrals continues on for several days even in small doses of procaine intraspinally. This sustained action accounts for the relief in paralytic ileus.

A word about paralytic ileus here. Trauma at operation, and the absorption of toxins from peritonitis, and the absorption of toxins from within the bowel lumen, as is seen in paralytic ileus, cause a reflex action with an over-function of the sympathetic system and a corresponding diminished function of the parasympathetic system. This bowel paralyzing action is at first protective and is to stop leakage and also to aid in the formation of adhesions. The over-function of sympathetics also brings more blood to the field to help fight off the toxin. This process should be complete in postoperative cases in three or four days, due to the rapidity with which the peritoneum heals. But nature overdoes its work as usual until a paralytic ileus develops and a vicious cycle is established. The



toxin now developed in the small bowel, due to stagnation, reverse peristalsis and abnormal secretions cause further reflex irritation of the splanchnic system.

Do not all of us endeavor to re-establish the balance of the sympathetic-parasympathetic systems on the fourth postoperative day with pituitrin, eserine and enemas when there is a threatening ileus? I believe that in cases where we are getting only slight results from pituitrin, etc. and the patient is in danger of death from paralytic ileus, it is rational to give one-half to three-fifths the anesthetic dose of procaine intraspinally, if this can be done without very much danger to the patient. The chief danger is in the fall in blood pressure. In small doses this fall is only slight and can be controlled by giving intravenous saline or glucose at the same time as the spinal is given. This numbing of the splanchnics with procaine was far superior to pituitrin and eserine and enemas in relieving symptoms of paralytic ileus in the three cases that I am reporting.

Splanchnic analgesia would probably give the same results as spinal but the technique is more difficult and likewise more dangerous.

Everyone has seen good results from spinal in desperate cases of paralytic ileus. We have seen good results in ileus from enterostomy done under spinal, while the results from enterostomy done under gas, ether or local are not very good. Why do an enterostomy with its resulting trauma of the bowel when the same results can be obtained from a duodenal tube passed through the nose into the small bowel without any trauma?

Procaine intraspinally should be the anesthetic of choice in cases where we expect to encounter paralytic ileus, such as in the aged, the debilitated and in peritonitis. When it is used in border line cases small doses should be given (100 milligrams of procaine hydrochloride or less) and supplemented with gas or ether. The fall in blood pressure is proportional to the size of the dosage of procaine. Most of this can be controlled by intravenous glucose.

Trauma and infection are the chief offenders in causing reflex splanchnic paralysis of the bowel. Therefore, careful selection of the anesthetic is necessary, the viscera must be handled with care and aseptic technique must be maintained. We should use extremely sharp knives and make quick cuts. Crushing of tissue is to

be avoided. In contrast, one must remember that a bullet penetrating tissue causes no pain—if the same went in slowly it would cause severe pain. This quick cutting with sharp knives is not intended to mean hurried surgery. Procaine should be used to anesthetize the meso and viscera where possible before cutting and especially before crushing tissue.

#### CASE REPORTS

Case 1. Mrs. C. M., aged 48 years, Chicago. On December 19, 1930, she was admitted with a ruptured, abscessed appendix with an ileus. An appendectomy was performed a few hours after admission under spinal anesthesia. At operation many adhesions were found around the small bowel and the cecum. Several ounces of pus were aspirated from pockets. The wound was drained. She received glucose and saline every eight to twelve hours. In this patient the symptoms of ileus cleared and she looked well for three days after the operation. But probably from the trauma of surgery and toxemia from the peritonitis, the symptoms of paralytic ileus returned on the fourth postoperative day and on the fifth day she appeared to be in a hopeless state. She was now toxic, dehydrated (in spite of intravenous) and had fecal vomiting. There were no results from enemas. 60 milligrams of procaine hydrochloride was given at this time intraspinally and in four hours her bowels moved, without enema, and all signs and symptoms of paralytic ileus cleared rapidly and patient was discharged January 7, 1931. Today she is in good health.

Case 2. Master G. B., aged 4 years, Niles, Illinois. On November 8, 1930, was admitted and at operation a ruptured, gangrenous appendix was removed. A diffuse purulent exudate covered the entire bowel and peritoneum. There was a striking absence of adhesions.

He received normal saline by hyperdermoclysis every eight to twelve hours, small doses of morphine and hot stupes to the abdomen. Three days after operation pituitrin and eserine were started. Enemas were given every six hours. Digifoline was given. The symptoms of paralytic ileus were marked all along. There was frequent vomiting, very little results from enemas, much distention, etc. until on November 18, 1930, he was extremely toxic, had fecal vomiting, was dehydrated and no one thought this patient had a chance. So as a last resort 6 milligrams of procaine hydrochloride was given intraspinally. This produced anesthesia for about forty minutes and in four hours his bowels moved, dark brown formed stool, without enema. Normal peristalsis began, vomiting ceased, gas disappeared and all other symptoms of ileus cleared. The bowels continued to move well. This patient made a slow recovery but today is in perfect health.

Case 3. Miss R. S., aged 37 years, Maywood, Illinois. On June 24, 1932, we did a sub-total hysterectomy, bilateral salpingectomy and appendectomy. A few days after operation she began to show signs of a paralytic ileus. On June 30, 1932, she had circulatory collapse, was cold and clammy and had a systolic blood pressure of 80. Continuous infusion of 5% glucose intravenously

was given with marked improvement. Her paralytic ileus continued to increase in spite of treatment consisting of rectal flushes, pituitrin and eserine, hot compresses, intravenous saline and glucose and duodenal tube. On July 6, 1932, twelve days after operation, she was in a hopeless condition. She was toxic, distention was alarming, tongue was cracked and parched, foul vomiting was constant. Her systolic blood pressure was 80. Pulse was rapid. 60 milligrams of procaine hydrochloride was given intraspinaly with dramatic results. Eight hours after the spinal her bowels moved (large dark semisolid defecation). The anesthesia in this case lasted 35 minutes showing that it was light. This was the first time this patient had had a real bowel movement since operation. Almost immediately after the spinal, fluids were absorbed when placed in the duodenal tube, signs of toxemia began to clear, the tongue began its return to normal and the blood pressure had risen to 105 thirty minutes after the spinal. Intravenous glucose was given during the spinal and was preceded by a hypodermic of adrenalin. Her blood pressure only fell five or six points and was followed in one half hour by a rise. She showed no more signs of an ileus after the spinal but developed erysipelas of the shoulder and neck one week later. Antitoxine was given and one-eighth per cent. mercurochrome was injected into the skin outside the margin of inflammation after she had had morphine. Collodion was placed on the skin around the mercurochrome and in twenty-four hours the erysipelas was gone. This patient developed a mild nephritis, probably from the horse serum, that cleared in a few days and she is now out of all danger.

#### RESUME OF TREATMENT

1. The rectum should be dilated at the time of operation to facilitate the expulsion of flatus.
2. If the patient is very ill with ileus, two-way rectal irrigations should be used instead of ordinary enemas. This lessens the strain on the patient.
3. Normal saline should be given routinely by the subcutaneous or intravenous route.
4. 5% glucose should be given for the first few days when there is an acidosis and should be continued preferably intravenously when there is circulatory collapse. Guard against producing an alkalosis.
5. Be careful with the use of soda as we may produce an alkalosis.
6. The duodenal tube should be passed early and left in.
7. Guard against too much morphine as it increases ileus.
8. Give adrenalin only when needed to maintain the blood pressure as it stimulates the sympathetics to greater function.
9. Small doses of pituitrin should be given frequently, 4 or 5 minims every 4 hours, when

signs of ileus are present. Pituitrin stimulates the parasympathetic system and it also raises the blood pressure. Eserine will help but is a dangerous drug.

10. If the patient is anemic we should give 200 to 400 cc of blood into the muscle every few days rather than to chance a reaction by the intravenous route.

11. Digafoline should be given routinely if there is great danger. It stimulates the cranio-sacral system.

12. Atropine should not be used because it depresses the cranio-sacral system.

13. In hopeless cases of postoperative ileus do not forget that you can numb the paralyzer of the bowel with a small dose of procaine hydrochloride intraspinaly. After giving this you must stay with the patient and keep the blood pressure up with intravenous glucose, adrenalin, digafoline, subcutaneous saline, etc.

14. Hot compresses should be used over the entire abdomen and not just a small area. Light abdominal massage helps stimulate the bowel.

#### CONCLUSIONS

1. Three fifths the anesthesia dose of procaine intraspinaly apparently relieved all symptoms of ileus in three cases which previously appeared hopeless.
2. The small dose does not cause such a great fall in blood pressure and when given below the first lumbar vertebra is fairly safe. The good results from blocking the splanchnics overbalance the dangers in a severe case of postoperative ileus.
3. Intravenous glucose should be given during the spinal analgesia to counteract the fall in blood pressure.

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#### BIBLIOGRAPHY

1. McMullins: Observations of spinal anesthesia. *Annals of Surgery*, Feb. 1930, pp. 242-256.
2. Lewis: *Practice of Surgery*, 1-64, Chapter 7. Volume 7. Postoperative Ileus.
3. Cunningham: *Anatomy (Sympathetic nervous system)*. pp. 774-793.
4. Muller, E. F.: Paralytic Ileus. *Mitt. a.d. Grenzgeb.* 41: 417, 1929.
5. Muller, E. F.:
6. Gage, I. M., Ochner, A., and Cutting, R. A.: The treatment of Ileus with splanchnic and spinal anesthesia, *Anesthesia and analgesia*, 9:91, 1930.
7. W. Zweig: Ileus, *Deutsche med. Wchnschr.* 55: 1344, 1929.
8. Bastedo, W.: *Materia Medica Pharmacology and Therapeutics*. W. B. Saunders Co., Philadelphia, 2nd ed., 1918.
9. Jackson, A. S.: Spinal Analgesia in major surgery. *Annals of Surgery* 91: 256, 1930.
10. Labat, G.: Survey of literature, *Nelson Loose-leaf Surgery*, Oct. 1929, Page 63.



11. Mayo, W. J.: The Anesthetic Problem, Proc. Staff Meet. Mayo Clinic 4: 289, 1929.
12. Lepoutre, C.: Permanent Nerve Disturbances from spinal anesthesia, Bull. etmen. soc. nat. de chir. 53: 457-456, 1927.
13. Schutz, C. B.: Spinal anesthesia. Surg. Gynec & Obst. 46: 281, 1928.
14. Nelson Loose Leaf Surgery, pp. 63-70. Survey of Literature—Ileus & Treatment Ileus. Service volume, 1932.

## ALLERGIC NASAL DISEASE\*

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An intelligent understanding of allergic nasal disease entails a study of both the histopathological and clinical aspects of this entity. Clinically, allergic nasal disease is characterized by an allergic family history, blood eosinophilia, positive skin tests and signs and symptoms due to localization of the process in the nose, such as sneezing, serous discharge containing eosinophiles, nasal block and often the presence of polyps. The nasal mucosa is usually pale and waterlogged. There is a predominance of vasomotor symptoms.

The histopathologic changes in allergic nasal disease are similar to changes in the bronchi found in bronchial asthma. Hansel<sup>1</sup> has given an excellent description of these changes. The surface epithelium is thickened and consists of many layers of columnar cells, although there is not always a loss of cilia. Areas of desquamation of epithelium appear scattered here and there. The subepithelial tissues are loose, edematous and infiltrated with eosinophiles. Large tissue spaces contain serum which gives the edematous appearance to the mucous membrane. Glandular structures are dilated, forming large cystic areas. In advanced stages atrophy of glands may occur. The cellular accumulation is less than in inflammatory nasal disease, but the edema is more marked. Edema and eosinophilic infiltration rarely extend deeper than the glandular layer, but even in the same specimen there may be a scarcity of eosinophiles in one area and a density in another; this variation occurring also with the lymphocytes and plasma cells. Even the edema may be more pronounced in some areas than in others. These variations of cellular elements, exclusive of the eosinophiles, may be dependent upon the age of the patient, chronicity of the allergic process, or the occurrence of

frequent attacks of acute infections. Bone changes are insignificant.

The differential diagnosis between allergic and suppurative nasal disease is important and clinically presents many difficulties. Secondary infection may entirely obscure the allergic background and the presence of polyps may result in a confusing picture. Mock has described a test for differentiation by streaking the turbinates with adrenalin but in my own experience this test has not proven reliable. Eyreman has found eosinophiles in the washings of sinuses thought to be of a suppurative nature but proven to be allergic. However, a secondary infection, to which the allergic mucosa is so liable, may produce a predominance of polymorphonuclears in the washings, making the eosinophiles an incidental finding. Tissue section is not always available, the patient's history often not classic; blood chemistry, blood eosinophilia, and skin tests are not always illuminating.<sup>2</sup>

I have reported the case of an individual who had an ethmoid and sphenoid exenteration, radical antrum and submucous resection, before it was recognized that the condition was allergic due to sensitization to house dust. I have also seen an antrum punctured and irrigated repeatedly because the individual had periodic attacks of pain confined to his cheek, x-ray and transillumination showing a distinct antral shadow on the involved side. However, treatment aimed at a suppurative process gave no relief. A more careful study revealed a transitory edema of the antral mucosa on the basis of a local angioneurotic edema, the pain and shadow being present only when the membrane was edematous. Subsequent treatment was unsatisfactory, but the patient was at least spared the ordeal of repeated puncture.

The confusion of theories regarding the etiology of polyps is alone an indication of the difficulty encountered in differentiating allergic from suppurative nasal disease. Hirsch<sup>3</sup> believes that polyps are due to prolapse of the mucosa of the antrum; he also believes that suppurative sinus disease can be diagnosed by the mere presence of polyps in the nose. Fraser agreed with Hirsch, but believes the ethmoids, not the antra, to be involved. Neither consider an allergic basis for polyp formation. Leischer, however, has made such a study and found

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that 34 per cent of the polypoidal nasal conditions which he studied were of allergic origin. The differentiation between allergic and infectious polyp formation is obviously imperative for proper treatment.

To illustrate the importance of the differentiation between allergic and infectious polyps I present the following case: Some years ago I saw a young woman who had a recurrence of ethmoid polyps; she had had such recurrence about every six months for many years, and as they caused a considerable amount of discomfort always had had them removed. Besides having the polyps snared out, she had had her ethmoids curetted three times, the first time in a European clinic where an extensive bilateral ethmoid and sphenoid exenteration had been performed. Her allergic family history was negative, but she volunteered the valuable information that she believed that face powder made her sneeze, and that her nose very often blocked after she had gone to bed at night unless she slept without a pillow.

Examination of the nose revealed a considerable amount of scarring resulting from the repeated nasal operations. The mucous membrane was pale, but not especially waterlogged. There were large ethmoidal polyps on both sides, although she had had the polyps removed but a few months before. The right antrum contained pus. The polyps were removed with a snare and no further nasal surgery attempted. They did not show eosinophilic infiltration on section. She was then advised to substitute an orris root free powder for her usual face and talcum powders, and to substitute a cotton pillow for her feather one. She was to return for skin tests after the nose healed, but failed to do so, as she had no further trouble. When seen two years later, although she was having no trouble she was tested for feathers and orris root; both gave positive skin reactions. Examination of her nose at this time revealed no evidence of recurrence of the polyps.

The response of allergic nasal disease to allergic therapy usually however is not as fortunate as in the case just cited, and for this reason the effects of radiation upon normal and allergic mucous membrane were studied.

An application of filtered radium to mucous

membrane results in a selective cytolytic effect upon the germinal layer of the stratified epithelium. This effect occurs during the first days after exposure. When the dose of radiation is sufficiently strong there results a true "radioepithelite" due to a destruction of the germinal layer of epithelium,<sup>6, 8</sup>. The destruction and falling off of the surface epithelium occurs about the twelfth day after irradiation. Coutard has shown that under the same technical conditions of radiation the falling away of the cutaneous epidermis occurs later, i. e., on the fifteenth to twentieth day. Reparation of the lesion takes place between twenty-two and twenty-seven days after irradiation of mucous membranes, and about forty-two days after irradiation of cutaneous epidermis.

The effect of radiation upon sweat glands and sebaceous glands is a diminution and suppression of their secretions. The mucous glands of the nasal mucous membrane are affected in a similar manner. When the irradiation is intense these glands atrophy and disappear. The connective tissue is the most radio-resistant and under radiation exposures undergoes a slow process of fibrosis.<sup>4</sup>

The functional changes induced in blood-vessels by radiation are well known since they have been studied directly by the capillaroscope. Erythema and edema occur, caused by a vasodilatation of the capillaries accompanied by diapedesis of leucocytes. According to Gassman<sup>9</sup> the lesion is first observed in the nuclei of the endothelium, followed by vacuolization of the cytoplasm. Sometimes the hyperplastic endothelial cells desquamate into the vascular lumen; sometimes they proliferate and obliterate the canal. Vascular lesions are especially manifest in organs treated by radiation of low filtration. They are particularly noticeable in proximity to radioactive foci introduced interstitially in tissues and also under the influence of diffuse caustic rays.<sup>5, 7</sup>

In order to study the effect of radiation on the allergic nasal mucous membrane, forty-four cases of hyperesthetic rhinitis were irradiated. All cases treated gave a typical history of spasmodic attacks of sneezing followed by profuse water discharge and nasal block, the symptoms occurring without relationship to season or climate. Nasal examination in all cases revealed the usual pale waterlogged mucosa found



in allergic nasal disease. Eleven of these individuals had demonstrated sensitizations to one or more foods or inhalants, showing positive skin reactions to such atopans as orris root, house dust, kapok, chicken feathers, wheat, egg albumin and beef. However, none had responded to allergic therapy. Twenty-nine of these patients had previously submitted to some form of intranasal surgery, such as submucous resection, intranasal or sublabial antrotomy, ethmoid or sphenoid exenteration, or repeated nasal cautery. The relief obtained from these procedures had been transitory. No case was irradiated in the presence of polyps or secondary nasal infection, radium being introduced into the nose only after these secondary changes had favorably responded to indicated therapeutic measures.

After cocainization of the nasal mucosa, 50 mgms. of radium were introduced into each nasal chamber and allowed to remain in place for two hours (total dose 200 mgm. hours). The radium element was held in four brass capsules, each capsule containing 25 mgm. of radium in silver containers. The total filtration was 0.5 mm. of silver and 1.0 mm. of brass. One capsule was placed in each middle meatus and one in each inferior meatus. Usually both sides of the nose were irradiated simultaneously.

The initial effect was an erythema, the congested red nasal membranes causing nasal block. The erythema and block persisted for from three to eight weeks, slowly resolving until the mucosa became normally pink in color and ample breathing space was established. During this period of erythema and congestion there was a copious muco-purulent discharge, which slowly lessened and finally subsided with the disappearance of the erythema. The sneezing usually stopped immediately following irradiation so that by the end of the eighth week the patient was symptom free, the nasal mucous membrane at this time being normally pink in color; however in some cases the pale color persisted in spite of the disappearance of the edema.

In the series of forty-four cases treated there was no case that was not benefited, the results being uniformly good, but inasmuch as only six months has elapsed since the first case was treated we are not prepared to evaluate our end results. No unfavorable effects from

radiation were encountered in the entire series of cases treated.

Microscopical examination of a fragment of allergic nasal mucosa excised eight weeks after radiation showed pronounced morphological changes. The subepithelial intercellular edema and dilated tissue spaces which constitute the characteristic microscopical picture of the untreated disease were entirely absent. There was also an absence of signs of acute inflammation. Capillary dilatation and leucocytic infiltration had disappeared. The mucous glands were no longer separated by edematous intercellular tissue but were crowded together. Isolated foci of lymphocytes and plasma cells had replaced the previously widespread acute cellular infiltration. The microscopic appearance of the tissue closely approached that of normal mucous membrane.

#### CONCLUSIONS

1. Diagnosis of allergic nasal disease is often difficult, and entails a thorough understanding of both the histopathologic and clinical course of allergic disease.
  2. The treatment of allergic nasal disease is often unsatisfactory; for this reason the effect of radiation upon the allergic nasal mucosa has been studied.
  3. The early results in a group of forty-four patients radiated were uniformly excellent. Although permanent therapeutic possibilities suggest themselves, at this time it is too early to evaluate the scope of this method of treatment; further studies are in progress.
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#### BIBLIOGRAPHY

1. Hansel, F. K.: Allergy and its Relation to the Inflammatory Diseases of the Paranasal Sinuses. *Ann. of O.R.L.*, June, 1930.
2. Deane, L. W.: Recent Advances in Otolaryngology. *Ann. of O.R.L.*, 38. 952-962, 1929.
3. Hirsch: Nasal Polypi, + Their Origin and its Solution. *Centralblatt f. Hals. Nasen. U. Ohrenh.*, 9:745, 1927.
4. Halkin, H.: Ueber des Einfluss der Becquerelstrahlen auf die haut. *Arch. f. Dermat. und Syph.*, 65:201, 1903.
5. Danysz, J.: De l'action du radium sur les differents tissus. *C. R. Acad. des Sciences*, 137:1926, 1903.
6. Thies: Wirkung der Radiumstrahlen auf verschiedene Gewebe und Organe. *Mitt. a. d. Granzgeb. d. Med. u. Chir.* 14:694, 1905.
7. Dobrovolskaie, Zavadskaie, N.: Modifications des fibres striees sous l'influence d'irradiations prolongees au moyen de foyers radiferes introduits dans les muscles. *Journ. de radiol. et d'electr.* 8:69, 1924.
8. Regaud, Cl. et, Nogier, Th.: Les effets produits sur la peau par les hautes doses de rayons X selectionnes par filtration a travers 3 et 4 millimetres d'aluminium. Applications a la roentgentherapie. *Arch. d'electr. med.* 21:49, 1913.

9. Gassmann, A.: *Zur Histologie der Rontgenulcera* Fort. auf. dem Geb. der Rontgenst 2:199, 1899.

10. Oudin, Barthelemy, et Darier: *Accidents cutlanes et visceraux consecutifs a l'emploi des rayons X.* *Congres de dermatologie de Moscou, 1897, et France medicale.* 45:113, 1898.

### DISCUSSION

Dr. Sidney Portis, Chicago: I am very much impressed with Dr. Bernheimer's report on the treatment of this disease which has so baffled all of us. My discussion is primarily concerned with the standpoint of the internist. I know very little about the nasal findings, and have looked into very few nasal cavities myself.

I have seen many types of hyperesthetic rhinitis that have persisted in spite of all tests for allergy. I do know this, however, that there seems to be a disturbance of calcium metabolism in some cases and merely changing the diet of the patient so as to produce, in the colon particularly, an aciduric flora, is exceedingly beneficial. I have seen definite evidence of hypothyroidism, and with the use of thyroid extract some of these cases have been benefited. Elimination diet will do a lot for some individuals. Allergic or hyperesthetic conditions are a manifestation of systemic disease. Some of these conditions in the nose are secondary, not primary. The whole thing is still a much mooted question. Anything that will help these cases locally should be done, but do not forget that sometimes, and very often, they are due to disturbances in metabolism which are much more deep-seated than we think, and even the allergists in their own minds are not convinced as to what is the allergic phase. Let us be open-minded.

I should be interested to know the late results of Dr. Bernheimer's radium therapy, and whether there are some remote tissue changes from this treatment. However, I am still of the feeling that it is a general problem and should be handled by the internist and the nasal surgeon.

Dr. H. L. Ford, Champaign: I should like to ask Dr. Novak whether he is still interested in calcium therapy. Also, if parathyroid extract does not increase calcium metabolism.

Dr. L. Benno Bernheimer, Chicago (closing): The effect of radiation upon the allergic mucosa was undertaken by Dr. Max Cutler and myself with the idea of observing the clinical and pathological effects of radiation upon this tissue. These observations have suggested therapeutic possibilities. The primary results in the group of patients treated have been excellent, but we feel that it is early to make any claims as to the permanency of results. However, I do feel at this time that this method of treatment has been more satisfactory than other therapeutic methods which we have used, and I believe that from the standpoint of rhinology any new therapeutic procedure which gives promise of relief in allergic nasal disease is well worth while investigating and observing. Radiation is not offered as a substitute for either rhinological or allergic procedures, but as a valuable adjunct to both and as a further hope when other methods have failed.

I do not wish to enter into any controversy concerning calcium metabolism, as I believe the literature

speaks for itself. Observations of individuals with hyperesthetic rhinitis have definitely shown that these individuals have blood calcium and basal metabolic rates which do not vary from the normal of any given group of individuals. Calcium does act as a general nerve depressant, but calcium and thyroid therapy is totally ineffective in the treatment of hyperesthetic rhinitis, as Sonnenchein and Pearlman pointed out in 1925.

Dr. Portis is unduly optimistic concerning the results in treatment of these conditions by diet. I have followed many of these cases under various dietetic regimes, even cases which have been in Dr. Portis' own hands; inasmuch as the rationale of this method of treatment is unsound, it is not surprising that the clinical results are nil. Extreme caution should be observed in reporting results from any therapeutic procedure in the treatment of allergic nasal diseases, as isolated cases respond to any form of therapy. In 1928 I reported a case of hyperesthetic rhinitis which was symptom free for one year following intravenous injection of sterile water.

I can assure Dr. Portis, that the use of radium in these cases is harmless.

### THE PUBLIC HEALTH ASPECTS OF INSTITUTIONAL CARE OF INDIGENT PATIENTS BY THE STATE DEPARTMENT OF PUBLIC WELFARE\*

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The public health aspects of institutional care of indigent patients by the State Department of Public Welfare, as seen at the Illinois Research and Educational Hospitals, differs considerably from other State Institutions inasmuch as this hospital is a teaching institution and is conducted jointly by the Department of Public Welfare and the State University, and in addition houses a branch laboratory of the State Department of Public Health. At this laboratory are examined material from the northern third of the State, excluding Chicago. And, as has been stated by Dr. D. J. Davis, Dean of the University of Illinois Medical College, "The advantage of close association between a college of medicine and a State department are well known. An abundance as well as a variety of material from the health department become available for teaching purposes. This material is often selected and may be of value for intensive studies and research. Health departments look to universities for accuracy in standards and for the latest and

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best scientific information. They must also depend to a considerable degree on universities for educating their personnel. With this close relationship, the university is in a far better position to educate not only students in public health but also medical and dental students, and we may add with emphasis, its own teaching force. Much of the teaching in public health courses in the universities and medical colleges not directly connected with the health department is highly artificial and impractical."<sup>1</sup>

An industrial disease clinic, as a public health measure, is a unit much needed for its educational value as an instructive adjunct in training students and physicians. Too little is known about silicosis, lead poisoning and other industrial diseases. There is much research work to be done along these lines and the economic value cannot be denied in the avenue of prevention and treatment in lessening time of absence from factory and work. It is believed that every educational institution is ready to cooperate in the establishment of the industrial disease clinic when the time is ripe for such action.

Dr. Carey P. McCord said in a recent paper: "I hope to challenge your interest by pointing out that the attitude of the medical profession toward industrial medicine, and the entry of so many inferior physicians into this field, have already jeopardized many of the real opportunities for the physician in industry, apart from emergency relief and surgery. The industrial physician has been so busy squirming under the lash of the *medical profession's criticism* and defending his position that he has functioned uncomfortably in his very commendable situation. While the medical profession has been fiddling over the faults of industrial medicine, the plums of opportunity have fallen into other laps. Instead of organized medicine creating, guiding and controlling the lines along which development should have taken place, we find most of the work, good or bad, in this field (except for emergency relief and surgery) carried out by governmental departments, insurance companies, statisticians, sanitarians, hygienists, psychologists, pseudopsychiatrists, chemists, safety engineers, optometrists, food faddists, efficiency experts, engineers and nurses.

"Recently, a certain group of manufacturers within the lead industry wished to make an elaborate study of lead poisoning among their employees. Instead of turning to the medical profession for trustworthy services, this study was delegated to a vital statistician. If we are truly interested in the economics of the medical profession, we should pay a little more attention to the harvest that is being reaped by these invaders."<sup>2</sup>

Why should the State interest itself in the care of the indigent sick patient, suffering from headache, rheumatism, diabetes or any acute or chronic disease? Simply because it offers custodial care and treatment to the mentally ill, feeble-minded, and epileptics? In these latter cases the preservation of future generations makes this not only advisable but necessary. In the former, however, why should it not be the exclusive duty of the individual community to take care of its indigent rather than burden the State with this task, except in special conditions as for instance the education of the deaf and blind, where centralized work by the State is more economical and effective? It is because of the educational benefits derived from this method.

The Research Hospital in conjunction with the State University, can and does by exercising a selective admission of cases, perform a triple duty, that of furnishing medical and surgical care and treatment to these unfortunates and in so doing they use these cases for teaching students and physicians so that they may go out to the local centers and scientifically treat such cases in their own communities, thus placing the responsibility on the county rather than on the State. Another benefit derived by the State is that of research work in discovering the cause and prevention of the prevalent disease. The service to the public is only half done when curative measures are not extended along preventive lines.

Whenever a problem case arises affecting public health, such as in tuberculosis, venereal diseases, typhoid fever and the contagious diseases, the public health aspect immediately becomes a State problem, and is cared for as such. Confronted, as we are, with the constant increase of mental diseases, which is fast becoming one of the major economic and social problems of the day, statistics are startling. It

has been stated that during the past forty years the number of mental cases in institutions has increased about four times as rapidly as has the population, and also the number of mental cases in institutions throughout the country almost equals the number of students in all colleges in the country.<sup>3</sup>

Owing to the stigma attached to a patient who has been committed to a State hospital for mental diseases much can be accomplished in the early stages, when nervous symptoms first appear, by clinical facilities provided by a general hospital and clinics for out patients. Early diagnosis and treatment means conservation of mental health, and the ultimate results would be to lessen the number of commitments for terminal treatment as public charges in our State institutions.

At the Research Hospital we have a psychiatric ward, housing sixty patients, one floor for men and the other floor for women. Cases are selected for study and research here from other State institutions and are not received by direct commitment. In conjunction with this department there is an out patient clinic. Much good work is being done and much is anticipated from this particular department.

Another factor from the public health viewpoint in this connection are the venereal diseases—a long period of supervised medical care, which must be begun early and continued to obtain the best results. Often the nervous system is involved with subsequent serious derangements. The lumbar puncture with the information thus derived might aid in the prevention of neurologic symptoms before the discharge of the patient and incidentally help prevent the occurrence of mental disease in many cases. As it is said ten per cent. of the commitments to mental hospitals are for general paresis, which is due largely to syphilis.

The care of crippled children. In a recent survey made in the State of Illinois it was estimated that there are over 16,000 physically handicapped children, with approximately 12,000 cases recorded. Of this number infantile paralysis was found three times as frequent as any other single cause.<sup>4</sup> While the State is interested in the care of these indigent cases at the surgical institute for children, one of the institutes at the Research and Educational Hospitals, cases for admission here are selected

for teaching and research work, to properly train students and physicians that each community may be organized and proper care administered. A waiting list is maintained as the applications for admission are so numerous. The benefits derived by the reclamation of these physically handicapped makes this department one of the most important ones in the hospital.

Another department deserving mention is our maternity ward—maternal care of our State wards, a service rendered to the public in the care of the expectant unmarried mother continued through the confinement period and after care. The babies are kept in the hospital until such time as they can be taken to homes of the families, State supervised boarding homes, or legally adopted by families found satisfactory by the Child Welfare Department of the State.

Research work properly becomes a public health measure when its problems affect the masses and indigent patients become the recipient of treatment and study.

The following work has been in progress at the Illinois Research Hospital during the past year:

In research work, as you know, results are only obtained after months and sometimes years of careful scientific investigations and study, through human endeavor and financial outlay by tireless, trained physicians and laboratory technicians before the ultimate goal is reached and often the end results are then discouraging.

Many of the problems under investigation at the Research Hospital are of direct clinical interest, indeed it has been the policy of the University administration to further research in the commoner diseases that affect many people rather than to concentrate on the study of rare conditions that only cause distress to the relatively few. The former are perhaps less thrilling and spectacular, the development of measures of relief has far greater public value.

In this way there have been conducted experiments during the recent hay fever season to test out the value of air filtration in preventing symptoms in hay fever and asthmatic patients. An eight bed ward was equipped with air brought in by motor driven fans from an open window; this air passing through screens covered with cellulose material and passing out



through an open transom, a positive air pressure being maintained in the room at all times. This year temperature of the room and humidity were not controlled as we hope to arrange the coming season. The time spent in the ward was nights only, three, four and seven nights consecutively, for the hay fever patients. The hay fever asthmatics, however, spent the whole twenty-four hours in the ward. Doctors visited the cases morning and night. During the day patients were free to go about as they pleased. In selecting these typical hay fever cases sinus infections were ruled out by x-ray examinations, also skin tests were made by pollen. The average length of time spent in the ward was seven nights. The results gave clear evidence that some of the most severe cases were completely relieved while in the ward and inasmuch as the method used is one that is relatively inexpensive the test has been of extreme practical value and will be continued another summer.

The department of pathology is engaged in a study on patients of the nervous mechanism underlying high blood pressure and its relation to nephritis. This is being carried out both in experiments on animals (dogs and monkeys) as well as work on patients in the hospital. They have also been studying the chemistry of the unstable individual, the asthmatic, the patient with urticaria, mucous colitis and headache. Studies of patients with migraine have reached the stage where definite chemical changes can be found *before* the initiation of attack. During the course of these studies various methods are being tried out to stabilize these "unstable" individuals. In direct connection with these investigations the metabolism of normal women throughout the entire menstrual cycle has been under investigation because of the peculiar lability of the female organs at certain phases of the cycle.

With the opening of the Psychopathic Institute, preliminary studies similar in character to these have been started on dementia praecox and maniac depressive insanity cases. It is proposed to extend the work as rapidly as funds may be available for detailed investigation.

The department of bacteriology has several typhoid carriers in the wards. Typhoid carriers are a real problem for State health author-

ities. Perfectly well themselves, they may innocently cause explosive outbreaks of typhoid fever in a community. The sterilization of such persons is an unsolved problem and a variety of methods are being tried out in the research hospital. In this connection they have been testing out the practical application of oral vaccination against typhoid fever, and while they do not possess enough data at present to replace the subcutaneous method with the oral, yet those who refuse or neglect the subcutaneous inoculations should be impressed with the advantages of the oral vaccination. Furthermore, the oral method seems to be effective, is economical, does not consume as much time as the subcutaneous method and could be substituted in institutional work. (The method follows: upon rising two (2) capsules each containing one-half gm. of dried bile is given with a glass of hot water; after thirty minutes one (1) cc of typhoid vaccine is taken with one-half glass warm water. This is repeated two succeeding mornings, three doses altogether.)

The department of medicine has for some years been interested in the study of obesity. The determination of the reason for fatness or leanness is of real practical importance for the health and welfare of many people, and their work promises to afford an insight into this problem.

For the past two years Dr. Carrol Birch has been doing some outstanding work in hemophilia or Bleeder's disease. She has had a total of thirty-five of these cases, eighteen at the present time, eleven of which are in the hospital. These patients have varied in age from twenty-two months to fifty-two years. She has been dealing successfully with these cases with ovarian therapy. The chief surgeon of the surgical institute for children, Dr. Henry Bascom Thomas, first suggested an ovarian transplant, which he did, with the result that the patient remained symptom free with normal blood findings for five and one-half months or until the transplant was absorbed. Since then they have been using whole ovarian substance, fresh ovaries, Theelin, P. D. & Co., up to 60 units daily and ovarian extracts 2 grs. daily. Nineteen of these patients have been under treatment for a period exceeding six months; nine of these have shown an excellent response,

nine have definitely improved while the condition of the remaining one has remained unchanged. The response to treatment has been both general and specific. The general improvement is shown by an increase in weight and hemoglobin. The specific response is shown by a lessening of the number and severity of the hemorrhages and a decrease in coagulation time from twelve hours to two—three hours. Dr. Birch states she has yet to see her first hemophiliac in a female although several suspected cases have been referred to her. Much is yet to be done and the ultimate therapy may be entirely changed.

The department of pediatrics report the following research work that is in progress in this department—A clinical and laboratory investigation of the effect of modification of the mineral content of raw cow's milk in infant feeding, A study of the cholesterol content of the blood in cretins and modification by thyroid treatment, A study of the treatment of chorea with special reference to the value of nervinol, special studies in diphtheria immunization and a study of the effect of feeding dried lactic acid milk over a long period of time.

In the surgical departments three important fields are being developed:

First—Work in the surgical institute for children.

Second—Chest surgery, of great value at certain stages in tuberculosis of the lungs.

Third—Surgery of the brain.

First: It has been stated that probably ten per cent. of our total population is suffering from some sort of chronic disease. The number of people complaining of rheumatism and arthritis in a good many communities is twice as many as those complaining of tuberculosis, and twenty times that of cancer. These percentages would probably hold throughout the United States.

One of the first problems that the orthopedic department undertook at the Research and Educational Hospital was juvenile arthritis and we have been working on it ever since. It is one of the most important subjects before us and the pathological, medical and bacteriological departments have been spending much time on this problem.

It has been recently stated that if we bring together all the people in Illinois who are now

suffering from chronic rheumatism you would have a city twice the size of Peoria. Take only those people who are completely and partially disabled by chronic rheumatism and you could populate a city as large as Rockford with its 86,000 people. Eliminate all but those who are completely disabled and the number of people with chronic rheumatism would still be sufficient to make a city the size of Dixon with its 10,000 inhabitants. The prevalence of chronic rheumatism in Illinois is an estimate based upon a survey made in Massachusetts by the State Department of Public Health which brought to light the fact that rheumatism is the greatest single cause of chronic illness in Massachusetts. There is every reason to believe that the situation in Illinois is very similar to that which prevails in Massachusetts.<sup>5</sup>

We know that osteo-myelitis is a systemic affair and goes to the bone through the circulation of the blood, in all cases, except in war cases, and in those of fracture with bone infection. Considerable work is yet to be done in discovering means of preventing subsequent outbreaks in distant parts of the body, when one localized area is apparently healed. The treatment practiced here is as follows—a thorough operative procedure is used, removing all dead bone, and an endeavor to make the wound as clean as possible; followed by the Orr treatment with vaseline drainage. The maggot treatment of Baer is also used, not, however, at the time of operation but after a lapse of a few days.

Second: Work in chest surgery, thoracoplasty and phrenicectomy, of great value at certain stages in tuberculosis of the lungs, is being carried on in the surgical department, where we have an average of fifteen such cases at all times, being treated with this form of collapse therapy.

Third: Surgery of the brain, under favorable conditions. There is little doubt that many patients at present in State hospitals might on careful examination be found suitable for operative procedures of this nature that would afford definite clinical improvement. And in conclusion I wish to state that work of this character is now in progress at the Research Hospital on cases thus transferred to us from other State institutions, and the results are proving very satisfactory.



## REFERENCES

1. Dr. D. J. Davis read before the 42nd Annual Meeting of the Association of American Medical Colleges, November, 1931, New Orleans, La. "Cooperation between the College of Medicine of the State University and other State Departments in Illinois."
2. The Economics of Industrial Medicine. Carey P. McCord, M. D. Jour. A. M. A., Vol. 93, No. 15, April 9, 1932, Pages 1238-41.
3. Dr. Walter J. Bierring read before Iowa Hospital Association March, 1932. Bulletin of the American Hospital Association, April, 1932, page 8.
4. Illinois Med. Jour., August, 1931, page 106.
5. Illinois Health Messenger, Vol. 4, No. 8, April 15, 1932. 1819 W. Polk St.

## DISCUSSION

Dr. Lloyd Arnold, Chicago: One thing that Dr. Worthington did not touch on is cooperation in organizations. Where we have various state departments under different headings cooperating together the success of such systems depends upon the personnel in charge of the various units. Since Dr. Worthington's appointment as superintendent or officer in charge of the Research and Educational Hospital Department of Public Welfare in Chicago, we have found 100 per cent. cooperation or, in fact, sometimes 200 per cent. cooperation. Dr. Worthington meets us more than half way and the work we have been able to carry on has been to a great extent due to Dr. Worthington's cooperation and his able executive ability. That Dr. Worthington forgot to mention in his paper.

The second thing I wish to call attention to is the importance of this group of hospitals operated and controlled by the State Department of Public Welfare. The scientific personnel and the medical personnel are associated with the University, but the Chicago Branch Laboratory of the State Department of Public Health is rapidly becoming the recognized authority on diagnostic laboratory procedures. The personnel of the health department located in this research group is appealed to for bacteriological diagnostic work and serological diagnostic work. Theoretically the University cannot take over the training of technical help and they are not in a position to have material of such volume as the health department does, hence the health department is very rapidly making for itself a place in this group. It is really very rapidly becoming a triangle. It used to be two parallel lines, the University and the welfare department. Now that is very rapidly becoming an equilateral triangle. We are getting the health department into this group and its influence is being felt more and more.

## SOME ASPECTS OF THE MECHANICS OF THE CHEST—THEIR CAUSES AND EFFECTS\*

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The bronchoscopist's mechanical viewpoint is different from the chest-surgeon's as he sees surgery of the ribs, and the internist in pleural effusion and pericardial effusion. The bronchoscopist deals with the mechanics of obstruction

of larynx and trachobronchial tree, the esophagus, etc., and their action and interaction upon the chest walls, the diaphragm, the neck, and the contents of the chest.

All is not asthma that wheezes, although clinically, general physicians often mistake wheezing for asthma. Any obstruction of this respiratory tract causes the wheeze. Laryngeal papilloma is most common in children. Fibroma and other benign tumors cause wheezing. Subglottic edema causes a wheeze which becomes faint early but soon so loud one can hear it a hundred yards in a hallway, and it is easily diagnosed over the telephone by pointing the receiver toward the patient's room, but in this stage it has changed to strictly a stridor. Partial obstruction of the bronchi, as the mucous membrane is swollen in the presence of a foreign body, causes what Chevalier Jackson calls "an asthmatoïd wheeze." Macerated peanut will cause wheeze as bronchial mucous membrane swells badly.

I recently had a case of non-diphtheritic subglottic edema with very loud stridor. Early in subglottic edema one may notice a wheeze which soon changes to a stridor. Most severe subglottic edema is diphtheritic, and unless large doses of anti-toxin are given a tracheotomy will be necessary.

Sometimes an audible slap may be caused by a foreign body slapping up against the larynx upon expiration. The wheeze and the slap are heard at the mouth. To understand why emphysema, atelectasis and wheezes occur, one must keep in mind that the bronchi are pipes of larger size on inspiration than on expiration.

In the bronchi there are four types of valves in foreign body cases:

1. By-pass valve. Air passes in and out.
2. Inspiration check valve. Air passes in on inspiration when the bronchi dilate, but when the bronchi contract with swollen mucous membrane the air is trapped in the lung. This is obstructive emphysema.
3. Stop valve. Air cannot pass in or out, and because air in lung is absorbed atelectasia occurs.
4. Reverse check valve. (Rare.) Air cannot enter past the foreign body, but upon coughing the air is forced out, thus hastening atelectasis, and the secretion is trapped—called auto-drownage.

The symptoms of four types of valves:

1. By-pass valve: Limitation of expansion on same side. Area below foreign body: Impaired percussion. Breath sounds diminished in

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area of dullness. Vocal fremitus and resonance are impaired. Rales are of great diagnostic importance. The passage of air is best heard over bronchi at the foreign body posteriorly. The trachea moves toward the affected side. Compensatory emphysema on the unaffected side.

2. Expiratory check valve: The heart is displaced somewhat to the opposite side. No rales on the affected side, although all types of rales may be heard on the unaffected side. Percussion tympanitic. Breath sounds are diminished or absent. The air enters expanded bronchus past the foreign body during inspiration, but is trapped during expiration. The air is under pressure distal to the foreign body. This valvular action is produced most often by a change in the size of the valve seat (bronchus) and not by a movement of the foreign body.

3. Stop valve: No air passes in or out, as the mucous membrane is swollen badly. The trapped air is absorbed causing atelectasis.

4. Inspiratory check valve: (Rare) The air cannot enter the lung, but coughing hastens atelectasis, as it forces the air out, as imprisoned air readily absorbs, and secretions rapidly accumulate. On the unaffected side a compensatory emphysema is present, therefore, a bronchial foreign body may be located very accurately by the physical signs mentioned above. Mediastinal structures, including the heart, aorta, trachea and esophagus are drawn over to the invaded side and the diaphragm is higher on the invaded side, and lower on the uninvaded side in obstructive atelectasis. Prolonged obstruction of the bronchi results in lung abscess with the foreign body suspended at the top of the abscess, held there by fibrosis. We speak of secretion trapped distal to foreign body as "drowned lung," but they drown in their own secretion. I had an exception to this rule—a meningitis in which basal cistern drainage was done, and thus relieved the child from its headache and twisting. Due to the deep sleep caused by tiring from its continual twisting, the child was allowed to lie flat on its back, and it drowned in the water; it vomited water, because of its lying on its back, the water flowed into the trachea and drowned the child.

Growths within the larynx and tracheobronchial tree mechanically obstruct the passage way, and act the same as a foreign body.

Growths without the tracheobronchial tree, benign or malignant, cause mechanical compression.

The thyroid gland in adults and the thymus gland in babies mechanically compress the trachea, but the thymus gland causes the compression, not because it persists but because it is enlarged. This is not thoroughly understood by many of the internists.

Acute obstructive emphysema:

1. Greater transparency on obstructed side.
2. Displacement of the heart to the free side.
3. Depression and flattening of the dome of the diaphragm on the invaded side.
4. Limitation of the diaphragmatic excursion on the obstructed side.

The x-ray picture in this case must be taken between crying, at the end of expiration, instead of the usual "take a breath and hold it," because the uninvaded lung would be filled with air at that time. On fluoroscopy the heart moves laterally toward the uninvaded side.

Congenital stridor is produced by an exaggerated form of infantile larynx. Stridorous respiration also may be due to laryngeal papilloma, laryngeal spasm, recurrent nerve paralysis, thyroid compression, congenital web, adductor paralysis in adults.

Laryngeal subglottic edema: If aspiration of secretion does not help, one must remember a baby under 2 years has a very poor ability to cough up secretions, it soon tires and dies unless watched closely. When the pulse becomes more rapid, the child becomes more restless and cannot sleep, inspiratory stridor becomes louder, the abdominal wall over the stomach region retracts two or three inches, and retraction over the first rib, clavicles and interspaces between the ribs, a tracheotomy is indicated. By after-treatment in tracheotomy the death rate is cut to one-half of one per cent. instead of ten per cent. as the American hospital records show. Subglottic edema is most often diphtheritic and diphtheria often has a watery nasal discharge many days before membrane forms, a common cold is watery about 24-48 hours only.

Esophageal mechanics: Meisner's and Aurbach's plexus gives us the ability to swallow uphill from a spring. Gravity does not play much of a part.



**Esophagus:** The esophagus is a long, loose, dangling tube having a constriction at the upper end—the cricopharyngeus muscle—has another constriction as it enters the chest, compressed by the muscles at the introitus of the chest, has another constriction as it passes the left bronchus, and also another as it passes through the hiatus of the diaphragm. These mechanical constrictions are important, because they enable one to know where foreign bodies are apt to be located, and where chemical caustics cause necrosis and later cicatrices. The esophagus has a common wall with the trachea, and travels sidewise in common with the trachea, as the result of positive or negative pressure.

A foreign body which partially or wholly obstructs the esophagus is located easily with the x-ray if it is opaque, but if it is non-opaque special technique is required. A complete obstruction of the esophagus causes an overflow of the head secretions into the tracheobronchial tree, as the esophagus is the sewer of all secretions from the head, and they are more than any one would suspect.

Esophageal obstruction caused by spasm causes the greatest dilation above the diaphragm, as the patients live long enough for extreme dilation to occur; whereas in carcinoma cases they do not live long enough to dilate greatly.

A partial obstruction by compression outside the esophagus, for example, enlarged thyroid, aortic aneurysm, cardiac enlargement, especially the right ventricle, carcinoma, etc., partly obstruct the esophagus. This dysphagia may first show itself following the pulling of teeth, or loss of dental plates.

Obstruction within the wall of the esophagus: for example, paralysis of one or both sides of Meisner's and Auerbach's plexus, angioneurotic edema, benign growths, or foreign bodies cause partial obstruction.

At this point I wish to illustrate an unusual case in bronchoscopy. A five-year-old child developed tracheobronchial diphtheria with subglottic edema. The indications for tracheotomy developed quickly as I had not seen the case in time to stop these indications by the use of antitoxin. A tracheotomy was performed. The child recovered from his diphtheria, but this was followed by sixteen life saving removals of

plugs at the bifurcation of his trachea, due to a bronchitis of four years duration. By forcing more steam in his croup tent the plugs quickly stopped, and the child made a complete recovery. This is simulated by Chevalier Jackson's statement, that in every case of post-operative pneumonia that he ever saw, the patient recovered by the removal of the plug. Many mistaken diagnoses of pneumonia occur when the secretion is trapped in the tracheobronchial tree or lungs.

In conclusion, may I state that you may tap, look and listen on the outside of the chest, but bronchoscopy and esophagoscopy in the hands of a trained physician will add a great deal to chest diagnosis and save many lives. All of the best that I know in this field I attribute to Chevalier Jackson of Philadelphia.

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## POTASSIUM SULPHOCYANATE IN HYPERTENSION

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*Introduction.* The work of Westphal<sup>1</sup> in Germany and Gager<sup>2</sup> in America directed our attention to the use of sulphocyanate in hypertension. The good results obtained by them were quickly duplicated by a large number of investigators as R. S. Palmer et al,<sup>3</sup> A. G. Smith and R. D. Rudolph,<sup>4</sup> and R. C. Logeheil.<sup>5</sup>

A study of the literature revealed that Claude Bernard<sup>6</sup> more than 70 years ago noted that sulphocyanate given intravenously in large doses was a direct muscle poison and abolished muscular activity. Olliven and Bergeron,<sup>7</sup> a few years later, showed that the drug when given by mouth was toxic but had to be given in larger doses than intravenously. Pauli<sup>8</sup> in 1903 gave the drug as a sedative in cases of tabes, heart disease and neurasthenia. While using this drug he noticed that some of his patients with hypertension were relieved of symptoms and showed a marked drop of blood pressure. Nichols<sup>9</sup> in 1925 reported twelve cases of hypertension in which the blood pressure was reduced by doses of 1 gram daily. Finberg,<sup>10</sup> reported 57% favorable response, on using potassium sulphocyanate 5 grains t.i.d. W. Goldring<sup>11</sup> in a recent article reports 32.4% improvement with potassium sulphocyanate. In Europe many in-

vestigators<sup>12 13 14</sup> have reported good results from the use of a combination of sulphocyanate and a purine diuretic.

It must not be taken for granted that all reports concerning this drug have been favorable. Ayman,<sup>15</sup> stated that he could not cause a reduction of blood pressure with sulphocyanate, without producing concomitant toxic results. Egloff, Lyman Hoyt, and O'Hare,<sup>16</sup> in a report on the use of sulphocyanate in 25 cases of hypertension, agreed with Ayman, in that every one of their patients became toxic from the drug, but, disagreed with him in that only two out of twenty-five showed a lowering of blood pressure. Two cases of exfoliative dermatitis were reported by Ayman<sup>17</sup> and Weis and Ruedemann,<sup>18</sup> respectively. Palmer and Sprague,<sup>19</sup> reported four cases in which the drug produced nausea and weakness in two cases, and anginal pains in the other two cases, although the blood pressure was reduced in all four patients.

Thus the conflicting reports from the literature and the great need for a drug, even if only of slight value, to combat the widely prevalent condition of hypertension, urged us to investigate the value of sulphocyanate in essential hypertension.

No patient received sulphocyanate until his or her blood pressure level was recorded. From three to ten sphygmomanometric readings were taken the first time the patient was seen at the clinic, the necessary laboratory work as

Urinalysis,  
Blood N. P. N. Creatinine and sugar,  
Basal metabolism,  
Electrocardiogram,  
Kahn test, blood picture,  
X-ray of heart and aorta,

was ordered and patient told to return within one week. Blood pressure readings were again taken and recorded for the second time. The patient was put on potassium sulphocyanate (if an essential hypertension) in doses varying from one and one half to five grains t.i.d. every day except Saturday or Sunday. If a fall of blood pressure associated with subjective improvement occurred the patient was given the vehicle Elixir pepsin compound, but the sulphocyanate was omitted. The patient however, was not aware of the difference in the preparations. When a rise in blood pressure occurred, while the patient was on this placebo, accompanied by a recurrence of symptoms, the case was

recorded as having responded to the drug if, on the resumption of sulphocyanate, the blood pressure dropped and the symptoms disappeared.

We believe this method of determining the response to sulphocyanate treatment to be accurate. We believe that a drop of 30 or more points systolic is, contrary to the statements of many writers on hypertension, no absolute evidence of response to drug therapy. We know of but few other fields where the weed "post hoc, ergo, propter hoc" reasoning flourishes more abundantly. A realization that the normal fluctuations of blood pressure in essential hypertension may be more than 30 systolic (60 is not uncommon) makes obvious the difficulty of evaluating therapeutic results, solely by fall of blood pressure.

Since 1929 we have had under observation 159 cases of hypertension. These have been classified as follows:

Essential Hypertension .....	148
Malignant Nephrosclerosis .....	6
Chronic Glomerulonephritis .....	2
one of whom was in a state of nephrosis.	
Polycystic Kidney .....	1
Arteriolo-nephrosclerosis .....	2
these were only differentiated from malignant nephrosclerosis by responding markedly to treatment.	

Forty-nine of the 148 cases of essential hypertension have not been followed long enough to draw conclusions as to response to therapy, so that this left 99 cases, 79 females, 20 males.

Improved Private Cases	Not Improved	Inconclusive	Percentage Improvement
22 females 1 male	8 females 1 male	19 females 9 males	70.33 females not enough data
Illinois Research Hospital 33 females 4 males	16 females 13 males	22 females 10 males	67.34 females 23.52 males

The above table shows the response of our patients to sulphocyanate therapy.

Average Percentage of Women Improved. .68.83

Average Percentage of Men Improved. .23.52

The percentage of improvement in women in this series is about three times as much as in men. This may be due to the following factors:

1. Greater exposure to the stress and strain



of life by men, and consequent inability to follow medical instruction.

2. The difficulty encountered in inducing men to undergo systematic treatment.

*Untoward Results.* When the blood pressure dropped suddenly and markedly, the patient often felt weak, dizzy, and drowsy but not always. In the case of O——— B——— a female, aged 62 years, weakness and palpitation occurred when the blood pressure dropped suddenly from 180 to 80. Electrocardiographic studies showed no evidence of a coronary thrombosis. When thiocyanate was withheld the blood pressure gradually went up to 120 at which point she felt perfectly well.

Of the 155 cases treated, only five complained of untoward effects. Thus, when the drug is used as previously described so that the tendency to cumulative action is overcome by having the patient omit his medicine one day a week, almost no toxic reactions occur. We also avoid toxic reactions by taking blood pressure readings at least every two weeks and guiding the dosage of sulphocyanate by the fall or rise of blood pressure, and the rate of fall or rise. In a patient on four grains of the drug t.i.d. who has responded by a fall from 160 mm. to 120 mm. the dosage may be cut to one grain t.i.d. or the drug omitted for an interval. It is also advisable to watch the subjective response of the patient.

In view of this almost complete lack of toxic reaction it is difficult to explain the results reported by Egloff, Hoyt, and O'Hare<sup>16</sup> in which all of the twenty-five cases reported nausea and vomiting, (possibly the drug spoiled, due to chemical decomposition or fungus growth. We have noticed a fungus growth when a watery solution of sulphocyanate has been exposed to warmth and air.) These observers noted a fall of blood pressure in only two cases, with toxic results in twenty-five, giving sulphocyanate response of about eight per cent, and toxic reaction of one hundred per cent.

The opponents of thiocyanate do not agree in their objections to this drug. Ayman,<sup>17</sup> in contra-distinction to the Egloff, Hoyt, and O'Hare<sup>16</sup> workers, admits a hypotensive action of sulphocyanate, but adds that the hypotensive and toxic effects occur almost simultaneously.

*Contra-Indications to Sulphocyanate.* One of the reasons the drug has fallen into relative disrepute is that the legitimate objections to its

use are ill defined. These contra-indications are as follows:

1. Hypertension of Renal Origin as
  - a. Glomerulonephritis
  - b. Bilateral renal stone
  - c. Polycystic kidneys
  - d. Amyloid kidneys
  - e. Suppurative renal disease
  - f. Periarteritis nodosa of renal vessels
2. Hypertension of Essential Origin, in which
  - a. Malignant nephrosclerosis has occurred
  - b. Very far advanced arteriosclerotic and arteriolosclerotic kidney destruction (Sulphocyanate may be given very cautiously but must be stopped immediately if patient shows evidence of drug intoxication. Occasionally when the destructive processes in the kidney are not too far advanced, these patients respond to sulphocyanate, and thus cause a differentiation from malignant nephrosclerosis.
3. Hypertension Secondary to
  - a. Prostatic obstruction
  - b. Intracranial neoplasms
  - c. Toxemia of pregnancy
  - d. Heavy metal poisoning
  - e. Tumors of the suprarenal glands
4. Marked Febrile States  
During high fever sulphocyanate should not be given because tendency to further inflammation may in presence of an upper respiratory infection precipitate a pneumonia.
5. Purely Systolic Hypertensions as in
  - a. Aortic regurgitation
  - b. Thyrotoxicosis
  - c. Marked aortic arteriosclerosis and coarctation of aorta
  - d. Complete heart block

#### CONCLUSION

In 99 cases of essential hypertension treated from three months to three years, using doses of potassium sulphocyanate ranging from 1½ to 5 grains t.i.d., 68.835% improvement occurred in women, and 23.53% in men. The improvement was not permanent as rise of blood pressure and a return of symptoms occurred if the drug was omitted.

Only five of our cases showed toxic reaction and these, were not marked.

Contra-indications to the use of this drug have been listed in detail.

#### BIBLIOGRAPHY

1. Westphal, K.: Über die Rhodanthérapie des genuinen arteriellen Hochdruckes. München Med. Wehnschr. 73, 1187 July 16, 1926.
2. Gager, L. T.: Incidence and Management of Hypertension with a note on Sulphocyanate Therapy. J. A. M. A. 90:82 (Jan. 14) 1928.
3. Palmer, R. S., Silver, L. S., White, P. D.: Clinical use of Potassium Sulphocyanate in Hypertension: 59 cases. New England Med. J. 201 709 (Oct. 10) 1929.

4. Smith, A. G. and Rudolph, R. D.: Use of Sulphocyanate of Soda in High Blood Pressure. *Canad. M. A. J.* 19: 288 (Sept.) 1928.
5. Logeheil, R. C.: Use of Potassium Sulphocyanate (Rhodan) in the Treatment of Essential Hypertension. *Minnesota Med.* 12:151 (March) 1929.
6. Bernard, C.: *Lecons sur les effets des substances toxiques et medicamenteuses.* Paris, 1857.
7. Olliver, A., and Bergeron, G.: *Compt. rend. Soc. de Biol.*, 1863, v. 22; *Jour. physiol. de l'homme et animaux.*, 1863, viii, 29.
8. Pauli, W.: Ueber Ionenwirkungen und ihre therapeutische Verwendung. *Munchen Med. Wehnschr.* 1:153-1903.
9. Nichols, J. B.: The Pharmacologic and Therapeutic Properties of the Sulphocyanates. *Am. J. M. Sc.* 70:735 (Nov.) 1925.
10. Fineberg, M. F.: Pot. Thiocyanate in the Treatment of Patients with Hypertension. *J. A. M. A.* 94:1822-1824 (June 7,) 1930.
11. Goldring, W. and Chasis, H.: Use of Sulphocyanate in Treatment of Hypertension. *New York State Jour. of Med.* 31: 1311-1316 (Nov. 1) 1931.
12. Lorcher, W.: Die Behandlung des genuinen Hochdruckes mit Rhodapurin. *Deutsche med. Wehnschr.*, 53: 23, 1927.
13. Hoffman, D.: Ueber die Hypertoniebehandlungen mit Rhodan-Kalzium-Diuretin. *Munchen med. Wehnschr.*, 42: 540, (Mar. 29) 1929.
14. Askanazy, S.: Rhodan-Kalzium-Diuretin gegen Hypertonie. *Munchen med. Wehnschr.* 74: 1793 (Oct. 21) 1927.
15. Ayman, D.: Potassium Thiocyanate in the Treatment of Essential Hypertension. Its Impracticability. *J. A. M. A.* 96: 1852. (May 30) 1931.
16. Egloff, Wm. C., Hoyt, Lyman H., O'Hare, James P.: Observations on Thiocyanate Therapy in Hypertension. *J. A. M. A.* 96:1941-1942 (June 6) 1931.
17. Ayman, D.: Exfoliative Dermatitis from Potassium Sulphocyanate. *J. A. M. A.*, 93: 1671, (Nov. 23) 1929.
18. Weis, C. R., and Ruedemann, R.: Exfoliative Dermatitis from Potassium Sulphocyanate Therapy. *J. A. M. A.*, 93: 988, (Sept. 28) 1929.
19. Palmer, R. S., and Sprague, H.: 4 Cases Illustrating the Untoward Effects of Potassium Sulphocyanate in the Treatment of Hypertension. *Med. Clin. N. Amer.*, (July) 1929.

## THE ORIGINAL DIAGNOSES IN TWO THOUSAND CASES OF DEFINITE PULMONARY TUBERCULOSIS\*

GEORGE THOMAS PALMER, M. D.

SPRINGFIELD, ILLINOIS

During the past few months, we have been studying the records of 2,000 cases of definite pulmonary tuberculosis, in the Palmer Sanatorium, in an endeavor to throw some light upon the relationship of tuberculosis to thyroid disease, to arthritis and to certain psychoses and neuroses. At the same time, we reviewed the diagnoses originally made in this group of cases to determine, if possible, the changing tendencies on the part of clinicians, the results of the campaigns for early diagnosis of the past two decades and, especially, to ascertain the difficulties which still prevail in reaching a diagnosis in the early and curable stage of the disease.

\*Presented before the Section on Medicine, Illinois State Medical Society, Springfield, Illinois, May 17, 18 and 19, 1932.

A group of 2,000 cases is small compared with the enormous numbers of cases reported by public dispensaries and the larger state, county and municipal sanatoria; but the manner of preparing these records gives unusual significance to this particular group. It has been our contention that the accurate case history is a most important factor in diagnosis,—as important, perhaps, as physical examination or laboratory procedures including the x-ray. Further, we have felt that a knowledge of the home environment, the emotionally disturbing factors and the degree of emotional stability of the patient is essential to a complete diagnosis, to an intelligent prognosis and to proper guidance and successful treatment.

Consequently, while I have assigned to my associates the taking and interpretation of x-ray plates and the more technical features of treatment, I have invariably reserved for myself the taking of the case history and have dictated that record to my superintendent, who has immediate supervision of the patient's life while in the sanatorium.

In securing the case history, we have always questioned closely the nature of the onset of the disease, the previous medical care and, especially, the diagnosis made by the family physician and, in most instances, we have confirmed the patients' statement by correspondence with the home doctor and with other physicians previously employed. As a result, the record of previous illness, mode of onset of the present disease and the original diagnosis or diagnoses is exceptionally accurate and detailed.

The group of cases is further interesting in that they cover a period of about fifteen years, so that there is an opportunity for comparison of diagnostic tendencies over a considerable period of time. While the results of the study have been tabulated, I feel that, for this presentation, it is more satisfactory to present general observations and conclusions rather than necessarily dry, statistical data.

It may be stated quite definitely that diagnoses of pulmonary tuberculosis are being made earlier, more accurately and less reluctantly than a decade or so ago. This may be partly due to increased interest in the disease; partly to the more general use of the x-ray; partly to the increasing popularity of periodical



physical examination and partly to the campaigns of popular education, causing the patient to seek earlier medical advice and to accept a diagnosis of tuberculosis less reluctantly.

There has come to be a surprisingly large number of cases discovered more or less accidentally, in general examinations, insurance examinations, and especially in examinations of the throat, where pulmonary disease had not been seriously suspected. In many instances, these accidentally discovered cases were very far advanced.

While a larger percentage of cases are originally recognized as tuberculous, there still appears to be a tendency to defer diagnosis. At any rate, many cases are not diagnosed until the disease is so far advanced as to be incurable and this is still true among those who have been under medical observation for considerable periods of time. In over 20 cases, where sanatorium care was sought immediately after diagnosis was made, the patient died within a few days after entering the sanatorium or during the short interim in which sanatorium reservations were being made.

It is generally accepted that a sanatorium should maintain about 25 per cent. of its beds for advanced or seriously ill patients and about 75 per cent. for earlier cases. It is discouraging to note that we still have to reserve 75 per cent. of our beds for hospital cases and 25 per cent. for ambulant cases and in this there has been no material improvement during a decade and a half. This may be indicative of unfortunate delay in entering sanatoria rather than to undue delay in diagnosis.

Covering a period of years, these cases disclose something of the changing diagnostic tendencies or what may be termed the changing fashions in disease. In the earlier years, there were many cases in which there was apparent confusion in differentiating between early tuberculosis and neurasthenia. This source of confusion seems to have largely disappeared and with the same clinical picture, the bones of contention now seem to be focal infection and thyroid disease. In fact, this appears one of the larger groups of errors in early tuberculous disease. The number of cases in which there has been an original diagnosis of infected tonsils, chronic appendicitis, chole-

cystitis, pelvic infection or thyroid disease, and often with surgery under general anesthesia, seems to be increasing rather than decreasing.

The confusion which was once rather common, in a diagnosis to tuberculosis and malaria has naturally disappeared with the wiping out of malaria and the original diagnosis of heart disease has decreased with the recognition that consumptives may and do present almost any form of heart disorder.

Of the more advanced cases the sources of error are divided between non-tuberculous pulmonary disease and gastrointestinal diseases. There were many original diagnoses of chronic bronchitis, many of unresolved pneumonia particularly following influenza and many vague diagnoses such as "aftermath of flu," interstitial pneumonia and asthma. In a considerable number of cases there were original diagnoses of lung abscess, bronchiectasis and pneumonokoniosis.

In a surprisingly large number of cases these diagnoses of non-tuberculous pulmonary disease were made in spite of the fact that the previous case history disclosed more or less pulmonary hemorrhage or pleurisy with effusion and in a considerable number of cases, advanced disease had been reached without recourse to x-ray or even sputum examination.

In some cases, the x-ray films, which accompanied the patients, disclosed evidence which had been originally overlooked. In a rather large number of cases, the x-rays on which diagnosis was made to depend, were so badly taken that they were completely unreadable. In this day of increasing reliance upon the x-ray in chest diagnosis, much might be said of the necessity for properly taken films and for their rather expert interpretation as well as of those cases in which the x-ray fails to disclose evidence which may be elicited by careful case history, by physical examination or even by sputum test.

Almost as large as the group attributed to non-tuberculous pulmonary disease, is that in which gastrointestinal disease is the confusing factor. This extends through the entire gamut of abdominal disease and such vague ailments as nervous dyspepsia and gastritis with stomach cough and still occasionally encountered. In many of these cases, the gastrointestinal disturbance was of toxic origin, so characteris-

tic of tuberculous disease, while there was an unfortunately large group in which there was actual intestinal tuberculosis, the terminal scene of an advanced pulmonary tuberculosis which had been overlooked.

Perhaps the most interesting group—and a surprisingly large one,—was made up of cases in which the diagnosis was not so much erroneous as incomplete. In these cases it appears to have been overlooked that tuberculosis is a very chronic condition, characterized by periods of activity and quiescence, and that it may co-exist with almost any other human ailment, and is often activated by the later acute disease. In many of the cases which came to us after surgery, the diseased tonsils or chronic appendicitis or cholecystitis doubtless did exist; but with it an equally definite dormant or active tuberculosis.

Chronic bronchitis and asthma may be and often are mere clinical manifestations of an underlying tuberculosis; but there is no reason why asthma, or renal or cardiac origin may not exist in a tuberculous individual or why the bronchitis of the tuberculous patient may not have some other underlying and contributing factor. Bronchiectasis and lung abscess may be found in the frankly tuberculous individual and, at one time recently, we had two patients with unquestioned pulmonary malignancy; but with constantly positive sputum. Non-tuberculous empyema may occur in the tuberculous individual and should always suggest a careful search for underlying tuberculosis. Tuberculous persons are subject to all forms of focal infections and tuberculous patients are almost always neurasthenic. A large part of the errors in original diagnosis are errors of omission rather than of commission.

While it does not lie within the subject of this paper, it would be misleading to leave the impression that all of the errors lay in failing to recognize tuberculous disease. I am still convinced, as I was a quarter of a century ago, that there are 100 cases erroneously regarded as non-tuberculous to one which is erroneously diagnosed as tuberculous; but it is none the less true that patients do enter sanatoria with a diagnosis of tuberculosis who are found, on careful study, to be clinically non-tuberculous. Of these, lung abscess and bronchiectasis are rather common and pulmonary

malignancy seems to be becoming increasingly frequent. It is rather encouraging than otherwise, in this day of business depression and great emotional strain, to find the number of patients, who appear with a typical picture of neurasthenia or emotional exhaustion, which is quite similar to our picture of focal infection or thyroid disturbance, who are suspected as being tuberculous. It is indicative of the growing appreciation on the part of physicians of the many varying guises in which tuberculosis may manifest itself.

## DISCUSSION

Dr. Clarence Wheaton, Chicago: Mr. President, Ladies and Gentlemen: I am very glad to have had the pleasure of hearing this interesting and very timely paper of Dr. Palmer. I think that we must confess that there is still room for improvement in our diagnosis so far as it concerns tuberculosis. We know that the average tuberculosis patient sees the general practitioner first. I have the most profound respect for the general practitioner's opinion. I have learned much from him at the bedside. I have learned that if he failed to diagnose the case it was because he did not have the right history, or perhaps did not study the roentgenology of the chest, or perhaps did not have the patient under observation for any length of time.

The patient has experienced no physical discomfort and he has gone along until a hemorrhage has frightened him, and he goes to the physician and finds that he has a moderately advanced case of pulmonary tuberculosis. So, after all, we have very little right to fix the blame in these cases for our failure to make an early diagnosis.

I recently saw a case of pulmonary hemorrhage in a terminal stage that had been treated for a diabetes mellitus—a very frank case of diabetes—and yet the pulmonary lesion had been overlooked.

If there are any obstetricians in this audience I wish to emphasize one thing; and that is, if you ever have a case of puerperal infection, or so-called puerperal septicemia, do not forget to look for the possibility of an acute miliary tuberculosis. This is something that the German physicians have given serious consideration to. We in America have not given it so much consideration, but I think that it is well worthy of investigation, and may save many physicians from condemnation, in these cases.

Over 30 years ago, when climate was considered a necessary adjunct to the treatment of pulmonary tuberculosis, the results of the diagnosis in 1,700 cases of consumption were published. These cases had all been sent to Colorado.

Physical signs of advanced tuberculosis were found in each lung in 69.1% of cases, while in 53.5% there were present unmistakable symptoms of severe systemic disturbances, including the fever of mixed infection,



amaciaion, weak and rapid pulse. The physical signs of excavation in addition to the above warranted classification of "advanced cases." 20.3 months was the average period of delay following the clinical onset of the disease before the arrival of the patient in Colorado. Perhaps unfortunately the average case of pulmonary tuberculosis causes but little physical discomfort until the disease becomes moderately advanced. Possibly blood stained sputum or copious hemorrhage may be the first indication of disease and so frighten the patient that he, for the first time, seeks medical advice, only to find that he is suffering from a moderately advanced lesion, and here oftentimes the diagnosis is not made until the patient is in an advanced and incurable stage of the disease. Tardy recognition of consumption has sacrificed thousands of lives through failure to at once institute energetic treatment and management, while in some instances there has been inability to recognize and appreciate the significance of the rational symptoms, to recognize and properly interpret the meaning of the physical signs. Mention may be made of the failure to elicit essential historic facts, to emphasize and group rational subjective symptoms, and to observe correct methods of physical exploration. Infallible accuracy of diagnosis may be established at times by recognition of the tubercle bacillus, but here, too, the destructive process may have become so advanced that the practical effectiveness of curative measures will fail completely. Remember that physical signs of recent infection appear long before tubercle bacilli.

We must admit of the failure at times to recognize the extreme seriousness of even the earliest active tuberculosis, and the futility of home care, or the necessity to prolong rigid discipline if recovery is to be obtained.

"Not alone for economic reasons, but humanitarian as well, early diagnosis assumes a position in the general consideration of consumption of infinitely more momentous consequence than any other phase of the tuberculosis problem."

Perhaps 90% of all tuberculosis is spread by people who don't know they have it, and only 1% by those who do. The moral is "*Discover all that is discoverable.*"

Dr. Wilson R. Abbott, Chicago: Mr. Chairman and Gentlemen: As I listened to Dr. Palmer's paper I recalled the conversation I had recently with Dr. M. P. Horwood, Ph.D., of the Massachusetts School of Technology. They made a survey of the tuberculosis situation in Boston in 1926. I have a few figures that I think of considerable interest.

In that survey, for instance, they found that in 20 per cent. of all the deaths due to tuberculosis no report of the disease had been made prior to death. In 36 per cent. of the cases the diagnosis was made only one month before death, and in 60 per cent. one year. A definite diagnosis of tuberculosis was made in only 29 per cent. of the cases showing tubercle bacilli in the sputum; and 15 per cent. almost 16 per cent. of the positive cases with tubercle bacilli in the sputum

were diagnosed as bronchitis. Dr. Horwood believes the lesson to be learned is that our medical schools are failing to give sufficient training in the diagnosis of the diseases of the chest, and especially in the diagnosis of early tuberculosis. Dr. Palmer's experiences would seem to sustain Dr. Horwood's opinion. Certainly my experiences do.

Dr. Palmer spoke of the confusion with thyroid disease, and we meet that very frequently. There is an important diagnostic point that should lead us to at least hesitation in diagnosing the rapid hearts and toxic symptoms as due to thyroid disease. It is this: The thyroid patient, when put to bed usually loses weight and continues to lose weight. The tuberculosis patient, when put to bed gains weight usually. That is important.

Certainly if the patient is put to bed and he is not an advanced case of tuberculosis and continues to lose weight and his toxic symptoms continue, we are then justified, probably in questioning the diagnosis of tuberculosis; but should he gain weight we would hesitate to pronounce his symptoms as due to hyperthyroidism unless it is based on something more than symptomatology, say metabolic rate. In respect to diagnosis based on clinical symptoms only you may recall an article on syphilis that appeared in the Journal A. M. A. a few years ago, by Dr. Guy. He endeavored to see how many cases of syphilis were correctly diagnosed clinically without the Wassermann reaction. I remember that his words ran something like this: "The one outstanding fact that came from the study of a tremendous amount of literature was that clinical diagnosis, at best, was fraught with many errors." So when we come to making a diagnosis of tuberculosis, of thyroidism, or whatever it may be, remember that equally eminent men may have their honest differences of opinion, and at the same time they may be wrong.

We should be accurate. Positiveness should not rest upon mere opinion, especially when there lies within our grasp very definite and positive means of diagnosis. It is very difficult to understand why some physicians do not avail themselves of such aids as the x-ray and sputum examination now available everywhere; and if a man is not skilled in physical examination of the chest he has in these agents something very definite and scientifically accurate to utilize.

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## COUNTRY DOCTOR

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He calls no hour of day or night his own.  
Through heat or cold he goes his rounds alone;  
Here, to bring some mortal into being,  
There, to ease some soul that must be fleeing.  
He listens earnestly to tales of grief,  
Forgets himself that he may give relief  
To bodies suffering, or tortured minds;  
In service to all men his pleasure finds.  
May God forever bless him with His grace,  
For when he goes, oh, who, will take his place?

—Edith Tatum and "Good Housekeeping."

## SURGICAL TREATMENT OF URINARY INCONTINENCE IN THE FEMALE

Norman F. Miller, Ann Arbor, Mich. (*Journal A. M. A.*, Feb. 20, 1932), states that in patients with incontinence due to parturitional trauma, especially the milder forms indicated by partial bladder control, one of the less extensive sphincter plaiting operations should be tried. Generally, the results will be satisfactory, but in case of failure (nerve injury?) one of the several muscle transplant operations should be utilized. All too often the surgeon persists in the use of plastic procedures on the sphincter till the patient, firmly convinced that her condition is incurable, refuses further treatment. In the more extensive injuries associated with cystocele it is quite as important to tighten both internal and external bladder sphincters as it is to restore the bladder to its normal position, a fact frequently neglected and responsible for persistent incontinence after this type of plastic work. Incontinence persisting after the correction of epispadias is best treated by muscle transplant, since in these cases there often exists an associated congenital weakness or absence of sphincter fibers. Colpocleisis and ureteral transplantation are not justifiable except as a last resort. The former is obsolete, while the risk in the latter, both immediate and remote, is still too great to warrant its use without first attempting relief by other means. Some may object to this on the basis that the technic of ureteral transplantation is now sufficiently standardized to remove it from the group of hazardous procedures. Even if this were true the ultimate fate of individuals thus treated is so unsettled that the operation should be reserved for patients who cannot be cured by less extensive operations. In every case greatest care should be observed in determining the cause of incontinence and in selecting an appropriate operation for its correction. By so doing the necessity for repeated surgery on the same patient will be minimized and the chances for cure greatly enhanced.

## CREED FOR TEACHERS

I believe in a yearly health examination.  
 I believe in prompt attention to physical defects found.  
 I believe in following carefully the personal health directions given at the time of examination.  
 I believe in embodying and radiating health.  
 I believe in practicing daily health habits.  
 I believe in being an example in personal hygiene.  
 I believe in making health contagious by example and enthusiasm.  
 I believe a healthy vital teacher is the index of her class.  
 I believe a teacher is largely responsible for the physical, mental and moral health of her pupils.  
 I believe in acquiring and in endeavoring to give to others the health point of view.—*Bulletin of New York State Department of Education.*

## REFORMING FASHIONABLE

Have you ever stopped to think that everybody is a member of some society or other whose object is to reform somebody or other? According to a recent report there are over 1,500 national "anti societies" in the United States, all working excitedly to prevent somebody from doing something they are supposed to want to do.

Reforming is very fashionable. Everybody is doing it. The rich are busy reforming the poor and the poor are passionately pleading with the rich to mend their ways. A man may violate the Volstead Act daily and gaily, and yet hold important office in a society the object of which is to enforce some other law. There are hundreds of organizations, employing thousands of people, campaigning loudly every day in the year for the enactment of some law or other. No sooner do we get the law enacted than we are importuned to organize to enforce it, and the day after the next we wake up to find that our neighbors have organized to repeal it!—*Pictorial Review*, June, 1923.

## DECAY OF TEETH PREVENTED FOR FIRST TIME IN HISTORY

For the first time in history, dental caries or tooth decay has actually been prevented. This means that the end of toothaches and of rotting, decayed and infected teeth, with their attendant ills, is now in sight. The method found effective to prevent tooth decay in animals need only be applied to human beings.

This achievement, the result of 10 years of work with hundreds of animals and representing an immeasurable boon to mankind, has been accomplished by Dr. E. V. McCollum, professor of biochemistry at the Johns Hopkins School of Hygiene and Public Health, and his associates, Dr. Henry Klein and Dr. H. G. Kruse. A preliminary report will appear in the forthcoming issue of *Science*.

The complete report will appear in early issues of the *Journal of Biological Chemistry* and the *Journal of the American Dental Association*.

## TREATMENT OF PERNICIOUS ANEMIA WITH DIGESTED LIVER

C. W. Barnett and W. M. Thebaut, Jr., San Francisco (*Journal A. M. A.*, Aug. 13, 1932), describe experiments in which they demonstrated that the response of certain patients with pernicious anemia to treatment with liver and liver extract digested in normal gastric juice differs in no particular from what would be expected from the same quantities of liver and liver extract, undigested. These results suggest that the increase in potency of liver when mixed with stomach tissue observed by Walden and Clowes is not alone a result of digestion of liver protein but may be due to a summation of the potent material already present in liver, in stomach tissue and possibly small amounts formed by digestion. The authors are unable to explain the discrepancy between their results and those of Reimann.



### TRICHINIASIS: REPORT OF OUTBREAK CAUSED BY EATING TRICHINOUS BEAR MEAT IN THE FORM OF "JERKY"

Albert T. Walker, Mare Island, Calif. (*Journal A. M. A.*, June 11, 1932), reports a fatal case of trichiniasis in a youth, aged 18 years, who joined a party of hunters in Trinity County, Calif., and brought down a brown bear weighing about 400 pounds (180 Kg.), age not determined. The bear was skinned, and as there was a large amount of meat to be disposed of, it was decided to "jerk" it and keep it for later consumption. The process of "jerking" consists in cutting the meat in strips, then smoking and drying it in the sun for a few days. The end-result is a strip of black meat 18 inches long, 2 inches wide, and one-half inch thick, rather tough and leathery and not particularly palatable. About seven days after eating his first jerky, the youth became ill with nausea, vomiting, diarrhea and generalized pain in the abdomen, which lasted two or three days and subsided. He continued to chew the jerky at odd times over a period of several days, and three or four days later he became ill with fever, malaise, anorexia, prostration and pain and stiffness in the muscles of the gastrocnemius groups. He continued to get worse; the muscular pains became quite severe; the temperature was high with large daily swings; he was unable to move his limbs, and he rapidly became delirious and died. The rest of the patient's family were lightly infected, except one sister, who had a severe attack. Encysted trichinellæ were found in sections made from the bear meat and also were recovered from muscular tissue of the diaphragm and pectorals at the necropsy of the patient who died of the effects of the disease. The outstanding clinical features of the case were the typhoid-like symptoms, chills and fever, a high leukocyte count with marked polymorphonuclear reaction during the height of the disease, the absence of muscular pain in one of the five patients, edema of the eyes in only two of the five, and the occurrence of the characteristic eosinophilia only during the period of convalescence.

### THE PERCENTAGE OF OCCUPANCY IN AMERICAN HOSPITALS

In an investigation on the percentage of occupancy in American hospitals, C. Rufus Rorem, Chicago (*Journal A. M. A.*, June 11, 1932), noted that the church and fraternal hospitals show approximately 63 per cent. occupancy; the industrial and independent and partnership hospitals, 49 per cent. and the independent institutions, 62 per cent. Many of the "independent" hospitals are organized as private corporations for profit. It is this group of institutions which has particularly suffered through reduction in occupancy during recent years. The author calls attention to the fact that the degree of utilization of a hospital may be expressed in terms of the amount of service rendered and may apply not only to "beds" but also to the professional personnel and scientific apparatus and equipment. The bed capacity of a hospital is merely one expression of its available scientific facilities. In addition, there are im-

portant capital investments in other scientific apparatus, such as laboratories, the x-ray department, the outpatient service, and physical therapy. It is quite possible that in a particular institution these scientific items of equipment would be used to a high degree of capacity, even though the beds of the institution were not filled with patients. This will be particularly true in a hospital that maintains a large outpatient service or in a private hospital owned and conducted by a clinic that utilizes the scientific apparatus and equipment for the office practice of the physician members of the group. The data set forth in the author's tables indicate clearly that at the present time the beds in the general hospitals of the United States are able to take care of an increased number of persons during any particular year and at any particular time. Whether or not these proportions are too large or too small cannot be answered for the country as a whole, for in some communities there is still need of additional institutions, while other communities admittedly have more facilities than can be properly used.

### PARENTAL ALCOHOLISM HAS NO EFFECT ON OFFSPRING

An important report entitled "Alcohol and Inheritance" has been issued by the medical research council. Before the war, Prof. C. R. Stockard of Cornell University published in America the result of experiments to determine the effects produced by alcohol on the fecundity of guinea-pigs and the quality of their offspring. His conclusions, which have been widely quoted, were that the daily administration of alcohol, in quantities sufficient to produce intoxication, caused a fall in the number of births and a liability to weak and defective offspring. Miss F. M. Durham, working at the National Institute for Medical Research, has made a large number of experiments on guinea-pigs, with an adequate number of controls living under identical conditions except for the administration of alcohol. Miss H. M. Woods has collaborated in the statistical analysis. The conclusions are quite contradictory to those of Professor Stockard. The litters from alcoholic parents or their descendants were as numerous and as heavy as in the control experiments. Deformities did not occur more frequently than in the control group, and the offspring for several generations showed no transmitted defects, such as described by Professor Stockard. It is pointed out that his experiments were performed in the days when the science of dietetics was not so advanced, and that supervision of the diet of the guinea-pigs was much more thorough in the present series. For example, a great point was made about the supply of cabbages. It is suggested that in the absence of cabbage from the diet it is possible that alcohol may have affected the breeding power. The guinea-pigs received their alcohol by inhalation while sitting in cages in a special tank. Their general health remained excellent despite daily intoxication following exposures of two or three hours. Thus there was no evidence of injury to the germ plasm.—A. M. A. *London Letter* (Aug. 29), 1932.

## POISON IMMUNITY

Game birds can eat with impunity grain poisoned with strychnine, not because they are immune to strychnine (they die if it is injected into their blood), but because the poison does not pass through the walls of the intestines. A man can swallow snake venom, but it will kill him if it gets into a scratch. He can acquire the parrot disease by way of the mouth, but certain monkeys yield to it only when the blood is directly affected.

These facts were presented by Professor Wilder Bancroft of Cornell University before the American Chemical Society to defend and elaborate views that a famous French physician, Claude Bernard, advanced over sixty years ago on the subject of insanity.

All poisons, anesthetics and drugs that interfere with the brain or the sensory nerves produce mild insanity, because they affect thinking and action. Thus anesthesia causes a coagulation or puckering of the proteins in the brain and sensory nerves, with the result that emotions and reasoning are influenced. If the affected proteins are made mushier normality is restored. This actually turns out to be the case when ephedrine or sodium thiocyanate is administered to anesthetized men, dogs, rabbits and goldfish.

All this means that chemistry is gradually discovering how the tissues of the brain and nerves can be chemically affected to treat the insane. Not to the physician but to the chemist must we look for much of our progress in medicine.—*New York Times*.

## BOYHOOD MEMORIES

Can you remember the time when you were a small boy playing baseball in the cow pasture—and you slid into what you thought was second base?

## SOCIETY PROCEEDINGS

### COOK COUNTY

#### CHICAGO MEDICAL SOCIETY

*Regular Meeting, Wednesday, November 9, 1932*

#### LAY EDUCATIONAL PROGRAM MEDICAL RESEARCH AND MEDICAL PROGRESS

Thirst and Hunger.

Dr. A. J. Carlson, Professor of Physiology,  
University of Chicago.

Medical Research and Animal Experimentation.

Dr. A. C. Ivy, Professor Physiology  
and Pharmacology,  
Northwestern University Medical School.

The Human Body and Its Care.

Dr. W. A. Evans, Health Editor,  
Chicago Tribune.

Traditions of Your Family Doctor.

Dr. Logan Clendening, Professor Clinical  
Medicine,  
University of Kansas.

*Regular Meeting, Wednesday, November 16, 1932*

### PRESIDENT'S NIGHT

Leadership in the Solution of Medical Problems and  
of Local and National Health Matters.

E. H. Cary, President, American Medical  
Association,  
Dallas, Texas.

The Hospital and the Medical Profession.

Dean Lewis, President-Elect, American  
Medical Association,  
Baltimore, Maryland.

*Regular Meeting, Wednesday, November 30, 1932*

### SYMPOSIUM ON HEART DISEASE

Early Recognition and Treatment of Heart  
Disease.

James B. Herrick.

Bedside Recognition and Treatment of Cardiac  
Irregularities.

Samuel Levine, Peter Bent Brigham,  
Boston, Massachusetts.

Significance of Electrocardiogram to the General  
Practitioner.

James G. Carr.

Discussion .....

C. C. Maher

Don Sutton

Walter Hamburger

### KNOX COUNTY

The Knox County Medical Society was host to the members of the Tri-Counties, Henry, Warren and Knox, on Thursday, October 13, in Galesburg, Illinois. From 3 to 5 o'clock in the afternoon a surgical clinic was held at the Galesburg Hospital by Dr. Harry M. Richter, professor of surgery at the Northwestern Medical School in Chicago. In the evening dinner was served to a large number of visiting doctors. The program in the evening consisted of a paper on "Evaluation of Certain Factors in the Treatment of Heart Failures" by Dr. Fred M. Smith, professor of medicine at the University of Iowa Medical College in Iowa City. The next paper was "Lacerations at Childbirth" by Dr. Eugene A. Edwards, assistant gynecologist at St. Luke's hospital in Chicago. The final address of the evening was on "Thyrototoxicosis" by Dr. Richter.

Louis N. Tate, *Secretary*.



## LIVINGSTON COUNTY

The Livingston County Medical Society met in the parlors of the Methodist Church at 6:30 p. m. Oct. 20. They enjoyed an excellent dinner served by the ladies of the church.

A short business meeting was conducted with the election of the following officers for the ensuing year: Dr. E. F. Law, Fairbury, president; Dr. J. G. Dwyer, Cul-lom, vice-president. The position of secretary and treasurer was cared for by the election of Dr. H. L. Parkhill, Pontiac, for the ensuing year.

A committee was appointed by the president, J. G. Scouler, chairman, Dr. C. M. Dargan and Dr. B. A. Richardson to present a note of sympathy from the Society to Mrs. J. M. Mitchell whose husband, Dr. J. M. Mitchell was a highly respected, active and splendid member of the Society for the past 32 years.

Dr. Thos. J. Foley of Chicago gave a very instructive and valuable paper regarding the Government expenditures on hospital care of the veterans of the world war, stressing mostly the non-service connected disabilities now being treated, the establishment of hospitals and the expenditures of money by the Government as a result of this act.

Dr. J. R. Ballinger gave a marvelous discussion of Medico-legal subjects which interested every individual member present and was extremely worth while. Dr. H. M. Camp, State Secretary was a visitor and discussed the papers freely. Dr. John R. Cook our new councilor was with us for his first visit and favored us with a very enjoyable talk.

Dr. Dicus of Streator announced that the 59th annual meeting of the North Central Medical Society would meet in conjunction with our county society Dec. 6, in Pontiac.

Those attending from out of the county were Drs. Thos. J. Foley, and J. R. Ballinger of Chicago, Dr. H. M. Camp, Monmouth, Dr. J. R. Cook, and Drs. Dicus, Wilson, Hill and Pierce of Streator.

Meeting adjourned at 10:30.

H. L. Parkhill, *Secretary*.

## OGLE COUNTY

The Ogle County Medical Society held its November Meeting at the Presbyterian Church, Oregon, Ill. Nov. 3, 1932.

President ..... C. H. Schaller, Rochelle.  
Vice-President ..... R. O. Brown, Mt. Morris.  
Secretary-Treasurer ..... A. R. Bogue, Rochelle.  
Censor for three years. .... J. M. Beveridge, Oregon.

Drs. Carl Axel, Rochelle and J. Stuart Moffatt, Byron, were elected to Membership in the Society.

Resolution by Dr. Kittler to indorse Senator Baker for re-election and thank him for his past support in protection of the Public Health met with unanimous approval.

Dr. Akin was also endorsed to continue as County Coroner.

Following the business meeting a wonderful program was presented by Dr. G. B. Eusterman, Mayo Clinic. His discourse on Gall Bladder and Pancreas with the review of error in 533 cases of jaundice was most instructive.

Drs. Weld and Murphy discussed certain problems of this subject.

## Marriages

JOSEPH L. AMOROSE, Chillicothe, Ill., to Miss Alyce Lorraine Read of Chicago, September 11.

WILLIAM B. EGAN, Oak Park, Ill., to Miss Dorothy Elizabeth Hutton of East Dubuque, at Chicago, in August.

ALFRED G. RICE, East Moline, Ill., to Miss Mary Ellen Rush of St. Louis, August 13.

## Personals

Dr. Bud C. Corbus was invited to show his interesting movie on "Transurethral Resection of Bladder Neck Obstructions," before the Aurora Medical Society on Thursday, November 3.

"Diagnosis and Treatment of Cerebral Hemor-

Dr. Abraham Levinson presented a paper on rhage in the New Born," at the November 8 meeting of the Rock Island County Medical Society.

Dr. LeRoy Sloan gave a paper on "Diagnosis of Brain Lesions" before the Staff of the Sherman Hospital, Elgin, on November 18.

Dr. Marshall Davison presented a paper on "Recurrent Choleystitis Following Cholecystotomy" at the November 23rd meeting of Will-Grundy County Medical Society.

Dr. Edwin W. Ryerson delivered an address on "Compression Fractures of the Spine" at the Southern Texas Post-graduate Medical Meeting at Houston, on November 29.

Dr. Aaron Arkin addressed the St. Joseph County Medical Society at South Bend, Indiana, on November 16. His subject was "Hodgkin's Disease."

Dr. Harry R. Hoffman gave an address on "Mental Diseases and Crime" at the luncheon meeting of Will-Grundy County Medical Society, November 16, at Joliet.

Drs. James H. Hutton and Nelson M. Percy have been invited to present the scientific program at the 40th anniversary party of Bureau County Medical Society. Their subjects have

been announced as follows: "Thyroid and Ovarian Disturbances at Puberty and the Menopause and Goiter." Physicians of central Illinois have been invited to attend this meeting.

At the Annual Meeting of the Society of Plastic and Reconstructive Surgery, held October 28, at the New York Academy of Medicine, Dr. Max Thorek, Chicago, was elected to active membership.

Dr. J. P. Greenhill of Chicago was the guest speaker before the section on obstetrics and gynecology of the Southern Medical Association which met in Birmingham, Alabama. His subject was "Local Infiltration Anesthesia in Obstetrics."

Dr. M. G. Carey, Director of Medical Exhibits of The Century of Progress, addressed a meeting of the Faculty of Medicine, November 2, 1932. At this meeting members of the Faculties of the Colleges of Dentistry and Pharmacy were present as well as Mr. H. C. Christiansen, President of the American Pharmaceutical Association. The College of Medicine will have an important exhibit at the World's Fair.

Dr. W. A. Evans addressed the Medical History Club, of the College of Medicine, University of Illinois, November 2, on "A Century of Progress in Public Health in Chicago."

A review of recent ophthalmic literature was presented before the Chicago Ophthalmological Society, October 24, by Drs. Louis Bothman and Leo L. Mayer.

The Chicago Surgical Society was addressed, November 4, among others, by Drs. Géza de Takáts and Henry W. D. MacKenzie on "Acute Pancreatic Necrosis and Its Sequelae."

Dr. Patrick J. H. Farrell has been decorated by the President with the Silver Star Medal for gallantry in action in the Spanish-American and World wars.

Frank R. Lillie, Ph.D., has been appointed vice chairman of the faculty of the School of Medicine of the Division of Biological Sciences, University of Chicago.

Dr. Nell Treva Pattengale addressed the Chicago Council of Medical Women, November 4,

among others, on "Radium as Used in the Present-Day Practice of Medicine."

Dr. G. Henry Mundt was elected president of the Association of New York Central Lines Surgeons at the annual meeting in Buffalo, October 14. The next meeting will be held in Chicago in June, 1933.

The Chicago Roentgen Society sponsored a symposium on parathyroidism, November 9, at the Palmer House. The participants were Drs. Max Ballin, Plinn F. Morse and William A. Evans, all of Detroit.

Prof. A. M. Dogliotti of the Royal University of Torino, Italy, addressed the Cook County Graduate School of Medicine, October 29, on "Recent Achievements in Peridural Surgical Anesthesia and Analgesia."

Drs. Joseph C. Beck and Robert H. Good spoke before the Chicago Laryngological and Otological Society, November 7, on "Osteomyelitis of Bone Face and Head with Recovery" and "Submucous Resection of the Nasal Septum," respectively.

Dr. Philip H. Kreuscher, among others, addressed the Chicago Society of Industrial Medicine and Surgery, October 31, on "Fracture of Femoral Neck with Especial Reference to the Blood Supply of the Head."

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### News Notes

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—"Orthopedics in Europe in 1932" was the topic for discussion at the meeting of the Chicago Orthopedic Club, November 11.

—The fourth annual William T. Belfield Lecture was delivered, October 26, before a joint meeting of the Chicago Medical and Urological societies, by Dr. Solomon Strouse, president of the Chicago Society of Internal Medicine. The title of the address was "Changing Concepts in the Dietary Treatment of Renal Disease."

—The fourth annual Arthur Dean Bevan Lecture of the Chicago Surgical Society will be delivered at the City Club, December 9, in conjunction with the Institute of Medicine of Chicago. Dr. Evarts A. Graham, Bixby professor of surgery, Washington University School of



Medicine, St. Louis, will be the lecturer; his subject, "Mediastinal Tumors and Their Treatment."

—Frank R. Lillie, Ph.D., professor of embryology, University of Chicago, will deliver the Charles Sumner Bacon Lectures at the University of Illinois College of Medicine, December 7-8, on "Problems in the Biology of Sex." Wednesday, Dr. Lillie's subject will be "Biology of the Ovary in Birds," and Thursday, "Effects of the Female Sex Hormone in Birds and the Nature of Sex Characters."

—The department of neuropsychiatry of the Research and Educational Hospitals, University of Illinois, has set aside a few beds for the study of children with infantile spastic paralysis. Only severely affected patients, completely unable to walk or stand, are desired. The hospital receives only patients unable to pay for medical services. Physicians or institutions having such patients who desire to take advantage of this offer are requested to communicate with Dr. H. Douglas Singer.

—Dr. George F. Dick has been appointed chairman of the department of medicine in the Division of Biological Sciences, University of Chicago. He has been holding a similar position at Rush Medical College since July, when he was appointed to succeed Dr. Rollin T. Woodyatt, resigned. Dr. Dick has been clinical professor of medicine at Rush since 1925. The new appointment was made effective, October 1, but Dr. Dick has been granted leave of absence until January 1.

—Dr. Henry S. Houghton, since 1928 dean of the University of Iowa College of Medicine, Iowa City, has been appointed associate dean of the Division of Biological Sciences, University of Chicago, and director of the University Clinics. He will assume his new duties, January 1. Dr. Houghton was dean of the Harvard Medical School of China, Shanghai, 1911-1917, acting director of the Peiping Union Medical College, 1918-1921, and director, 1921-1928. As director of the clinics, Dr. Houghton will succeed Dr. Franklin C. McLean, who will become a professor of physiology in accordance with his desire to return to scientific research.

—The Decatur Medical Society, the American Legion and the Association of Commerce

together dedicated a plaque to the memory of Dr. Robert L. Morris, October 23. The tablet, which is placed in the Decatur armory, was unveiled by Mrs. Morris and accepted by Omer E. Davenport. J. J. Maloney, president of the Association of Commerce, eulogized Dr. Morris as a member of that group; Dr. John M. Hayes, colonel of medical reserves, as a member of the Decatur Medical Society, and Nellis Parkinson, past commander, American Legion, as an organizer of Castle Williams Post. James Ringley, Chicago, department commander of the American Legion, also spoke. Dr. Morris died in May, 1929.

—The Joseph A. Capps Prize of the Institute of Medicine of Chicago, consisting of \$500 for the most meritorious investigation in medicine or in the specialties of medicine, is again offered. The investigation may also be in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who have received the degree of doctor of medicine during the year 1930 or thereafter. The manuscript must be submitted to the secretary of the institute, 122 South Michigan Avenue, not later than December 31. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1933, the time to be designated later. If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the board of governors.

—Miss Jane Neil, internationally known as an educator and especially known to the physicians of the country for her work in the education and rehabilitation of crippled children, died at her home in Chicago, Oct. 29, 1932. Miss Neil at the time of her death was assistant superintendent of schools in charge of handicapped children in Chicago, chairman of the Section on Crippled Children of the White House Conference, honorary vice president of the International Society for Crippled Children, a director of the Chicago Heart Association, and active in many other movements for the welfare of the handicapped. For fourteen years Miss Neil was principal of the Spalding School of Chicago, whose work for crippled children was developed under her

guidance. This has been known as the foremost school of its kind in the world and is visited yearly by educational and medical authorities from every country. Her advice as a consultant was sought after by those in charge of similar developments in all parts of the United States.

—The fifty-eighth annual meeting of the Southern Illinois Medical Association convened in Carbondale, November 3-4. Addresses were given by the president, Dr. Charles S. Skaggs, East St. Louis, and by Dr. John R. Neal, Springfield, president of the state medical society.

Officers elected at this session include Drs. Burt F. Crain, Carbondale, president; William J. Benner, Anna, and Irenaeus L. Foulon, East St. Louis, vice presidents, and Ben Fox, West Frankfort, secretary.

## Deaths

Carl Baker, Herrin, Ill.; Northwestern University School of Medicine, Chicago, 1906; member of the Illinois State Medical Society; aged 55; died, September 17, of injuries received in an airplane crash.

Grant Brayton Bushee, Kankakee, Ill.; Hahnemann Medical College and Hospital, Chicago, 1887; served during the World War; on the staff of the Kankakee State Hospital; aged 68; died, October 15, in St. Mary's Hospital, of injuries received when he was struck by a truck.

Henry J. Casedy, Chicago; Hahnemann Medical College and Hospital, Chicago, 1903; aged 69; died, September 20, of mitral stenosis and coronary sclerosis.

Lintsford B. Coates, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 55; died, October 15, of chronic nephritis.

Clinton DeWitt Collins, Chicago; Hahnemann Medical College and Hospital, Chicago, 1889; a Fellow, A. M. A.; Rush Medical College, Chicago, 1890; formerly professor of skin and venereal diseases at the Hahnemann Medical College and Hospital; member of the Radiological Society of North America; aged 66; died, October 15, of cirrhosis of the liver and heart disease.

Charles Peter Gieraltowski, Chicago; Illinois Medical College, Chicago, 1905; member of the Illinois State Medical Society; served during the World War; aged 59; died, October 12, of bronchogenic carcinoma of the right lung.

Eugene Laurence Hartigan, Chicago; Northwestern University Medical School, Chicago, 1909; also a lawyer; for many years assistant police surgeon; aged

50; died, October 28, in the Mercy Hospital, of ruptured gastric ulcer and aspiration pneumonia.

Nathaniel Bruyn Hoornbeek, Youngstown, Ill.; Rush Medical College, Chicago, 1881; member of the Illinois State Medical Society; aged 78; died, October 7, in Monmouth, of coronary thrombosis.

Charles B. Horrell, Galesburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1884; member of the Illinois State Medical Society; aged 81; died suddenly, October 28, of cerebral hemorrhage.

Leon Woodford Kelso, Paxton, Ill.; Northwestern University Medical School, Chicago, 1915; a Fellow, A. M. A.; served during the World War; aged 42; died, October 13, in the Passavant Hospital, Chicago, of coronary occlusion.

Julius Henry Lee, Chicago; College of Physicians and Surgeons of Chicago, 1886; aged 76; died, October 15, of carcinoma.

William Edgar McClelland, Beason, Ill.; St. Louis Medical College, 1878; aged 79; died, October 12, of senile dementia.

Floyd Delos O'Brien, Chicago; Rush Medical College, Chicago, 1876; aged 78; died, October 17, of heart disease.

George Alexander Schneider, Chicago; Dearborn Medical College, Chicago, 1906; a Fellow, A. M. A.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; aged 60; died, October 17, of heart disease.

Sickels, Edward Allen, Dixon, Ill.; Hahnemann Medical College, Chicago, 1897; a Fellow, A. M. A.; fellow American College of Surgeons; a traveler and lover of outdoor sports, he collected trophies from the United States and Canada; active in medical organization work and Masonic bodies; aged 66; died, November 13, of carcinoma.

John Weatherson, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; a Fellow, A. M. A.; formerly associate professor of medicine at his alma mater; served during the World War; past president and secretary of the southside branch of the Chicago Medical Society; on the staff of the Illinois Masonic Hospital and formerly on the staff of the Cook County Hospital; aged 59; died, October 22, in St. Luke's Hospital, of auricular fibrillation and aortic stenosis.

Stephen Gano West, Chicago; Rush Medical College, Chicago, 1890; member of the Illinois State Medical Society; formerly adjunct professor of gynecology, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois; on the staff of the West Side Hospital; aged 67; died, October 18, of a self-inflicted bullet wound.

Julius Murray Wilson, Marissa, Ill.; Medical College of Ohio, Cincinnati, 1873; aged 85; died, August 11, in St. Louis, of myocarditis.





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